



# *Environs*

VOLUME I

FIRST EDITION

1984

ENVIRONMENTAL AWARENESS PROGRAMME

Under

INTEGRATED ECO-DEVELOPMENT PROJECT  
ON RIVER GANGA BASIN

At

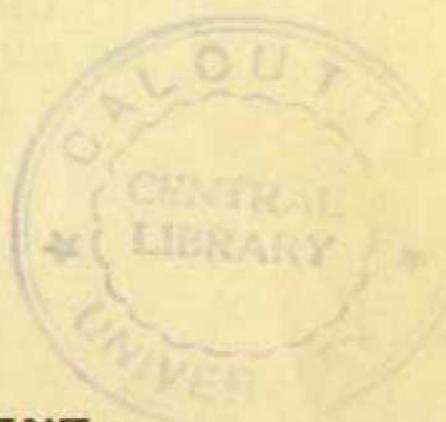
CALCUTTA UNIVERSITY

*Sponsored by*

DEPARTMENT OF ENVIRONMENT  
GOVERNMENT OF INDIA

*Life Science Centre  
Calcutta University  
35, Ballygunge Circular Road  
Calcutta-700 019*

Edited by  
T. M. Das





# ENVIRONS

Volume I

*First Edition*

1984

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Integrated Eco-development Project on river Ganga basin  
In collaboration with  
Indian Association of Biological Sciences &  
Life Science Centre, Calcutta University,  
35, Ballygunge Circular Road, Calcutta-700 019

69476✓  
BCU 3805

*Printed by*

The Eureka Printing Works Private Ltd.  
76, B. B. Ganguly Street, Calcutta-700 012

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## PREFACE

The book is published with a view to generate environmental awareness in general by utilizing existing resources and available indigenous talents in the field of environment. We hope, the various information provided in the book and the mailing addresses of different agencies will bridge the gap among different Non Governmental Organizations (NGO), Institutes, Societies and Science Clubs and help them know each other and develop long term exchange relation, effective interaction and active co-operation amongst all concerned.

The subject matter of the book is divided into 9 Parts in 2 Volumes. While Part 1 gives the list of agencies, Part 2 of the present Volume consists of lists of Movie Films and Video Cassettes on environmental topics. In view of the majority of the cliental (70%) being illiterate, the mass propagation of the powerful medium of Movie Films in our country is not only desirable but seems to be a must. But unfortunately this medium is being poorly used and is almost awfully abused. A radical change towards the present concept and practice of using Movie Films in our country is now imperative.

The book is published as a part of the programme of Environmental Awareness under the Intergrated Eco-development Project on river Ganga basin at the Calcutta University sponsored by the Department of Environment, Government of India. All the two volumes will be circulated free of cost to those organizations who are actively engaged in the study of the environment. The various lists published in the book are, however, not exhaustive ones. These will be continuously updated in subsequent editions and in this effort an active co-operation from the readers is earnestly solicited.

During writing up of this book I have received unreserved help, valuable advice and incessant encouragement from two of my co-investigators of the Project, Prof. K. G. Bagchi and Dr. N. C. Dutta which I treasure very much. Brilliant assistance also was received from our first batch of students of M. Phil Course in Environmental Science, namely : Sm. Soma Banik, Sri Tarakdas Basu, Sri Susanta Chakraborty, Sm. Suchismita Dev, Sri Avijit Guha, Sri Asit Baran Mandal, Sm. Patralekha Mukherjee, Sri Sankar Nandi, Sri Tapan Kumar Poddar, Sm. Sutapa Saha, Sm. Rita Saha, Sri Sagarmoy Saha and Sri Tapan Saha. I would also like to express my sincere thanks to the Department of Environment, Government of India for sponsoring the entire programme. Thanks are also due to various agencies and individuals, specially to Sri S. K. Bagchi of Birla Industrial and Technological Museum and Sri Nirmalyabaran Jana for active co-operation and help.

T. M. Das

## CONTENTS

### VOLUME I

#### *Environs Spectrum*

PART I	Mailing Addresses of Non-Governmental Organizations (NGO) and Registered Societies in different States of India engaged in the study of Environmental Science and Life Science	1
PART II	Movie Films on Environmental Science and Life Science available at different Institutes and Organizations	33
	Video Cassettes on Environmental Science and Life Science	55
PART III	Environmental Education	56
	Regulations of M. Phil Course of Calcutta University	56
	Programme in Environmental Science at Calcutta University	61
PART IV	Books and Journals on Environmental Science and Life Science available at Universities, Institutes and Organizations at Calcutta	87
PART V	Mailing Addresses of Science Clubs of Eastern States of India	127

### VOLUME II

#### *Environs Perspective*

PART VI	Standard Techniques for Detection and Measurement of Environmental Pollutants
PART VII	Acts and Regulations for Protection of the Environment
PART VIII	Mailing Addresses of International Agencies working on Global Environment
PART IX	Detail Formats for application for Grants/ submission of Research Schemes to DOE, DST, ICAR, ICMR, UGC, CSIR, NSA, including different International Agencies



## PART I

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9

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Society of Environmental Engineers (UK)  
Institute of Engineers of India,  
Building No. 3, Vidhana Veedhi,  
Bangalore-560001
170. Dr. T. B. Lahiri, Member Secretary,  
Sunderban Development Board,  
Society for Equitable Economic Development,  
125, Lenin Sarani, Calcutta-700013
171. Mr. M. Ishaq, Srinagar Environmental Group,  
Ecology Laboratory, P. G. Department of Botany,  
Kashmir University, Srinagar-190001
172. Mr. A. K. Bhargava, Saharanpur Environmental Group,  
M. S. College, Saharanpur-247001

## PART I

15

173. Mr. K. Srinivas, Sholapur Environmental Group,  
Department of Geology,  
Dayanand College of Arts and Science,  
Sholapur, Maharashtra
174. Shri Shanti Lal Bhandari, General Secretary,  
Sanjeev Seva Samity,  
144/8, Ashok Nagar, Udaipur-313001 , Rajasthan
175. Mr. John C. Jacob, President,  
Society for Environmental Education in Kerala,  
Edat. P. O., District Cannanore, Kerala
176. Prof. D. D. Pant, Secretary,  
Society of Plant Taxonomists, Department of Botany,  
University of Allahabad, Allahabad-211002
177. Dr. P. M. Bhargava, President,  
Society of Biological Chemists, (India),  
Indian Institute of Science, Bangalore
178. Dr. R. N. Shukla, School of Environmental Biology,  
A. P. S. University, Rewa, U. P.
179. Mr. Brij Khandelwal,  
Society for the Defence of Environment,  
C 40, NDSE Pt. II, New Delhi-49
180. Mr. V. P. Agarwala, Society for Promotion of  
Waste land Development, Forestry Advisor  
6, Sunder Nagar, New Delhi-110023
181. Dr. K. Sreekumar, General Secretary,  
Society for the Protection of Environment (Kerala)  
Binoy Vista, Cheyayyur, Calicut, Kerala-673017
182. Mrs. B. Sugathakumari, Secretary, Society for the  
Conservation of Nature, (Prakriti Samarkshana Samiti)  
Varada Nanda Vanam, Trivandrum-695001, Kerala
183. Shri A. K. Roy, Shahdol Group, C/o. Vidushak Karkhana  
Anuppur, District Shahdol-484224
184. Prof. M. Kalander, Secretary,  
Society of Environmental Services and Research Group  
for Youth (India), No. 12, 11th Street,  
Lourduswamy Colony, Near Bharati Dasan University,  
V.C's Office, Tiruchirapalli-620023



185. Prof. Shafeeq Naqvi,  
Society for Services in the Himalayas,  
Himalaya Sewa Sangh, Rajghat Colony, Delhi-110002
186. Dr. N. Keshosinhg, Science Teachers Forum,  
Manipur Keishampet, Madhavaban,  
Imphal-795001
187. The Secretary,  
Scientific Workers Forum, Calcutta
188. Dr. S. B. Chapekar, Joint Secretary,  
Society for Clean Environment, Garden Resort,  
606, E. Scion Trombay Road,  
Chembur, Bombay-400007
189. Secretary,  
Society for Plant Physiology and Biochemistry,  
Room No. 306, Nuclear Research Laboratory,  
Indian Agricultural Research Institute,  
New Delhi-110013
190. General Secretary, Society of Indian Foresters,  
Dehradun, New Forest-248006, U.P.
191. President, Students Environmental Club,  
Department of Zoology, M. B. College, Udaipur,  
Rajasthan
192. Secretary, Save a Tree in Your Area, (SATYA),  
D 1/151, Satya Marg, Diplomatic Enclave,  
Chanakyapuri, New Delhi-110021
193. Coordinator,  
Society of Appeal for Vanishing Environment,  
The Retreat, Bhimtal-263136, U. P.
194. Secretary, Society of Environment Engineers,  
L.R.D.E., Bangalore
195. The Secretary, The Science Association of Bengal,  
104, Diamond Harbour Road,  
Barisha, Calcutta
196. Shri Panna Lal Dasgupta, Secretary,  
Tagore Society for Rural Development,  
14, Khudiram Bose Road,  
Calcutta-700006

## PART I

17

197. The Secretary, Tribal Documentation Centre,  
Gutusai Chaibasa, Singhbhum District, Bihar
198. Mr. P. A. Joseph, Secretary,  
Thekkadi Wild Life Society,  
Kumity P.O., Kerala-685509
199. Dr. L. L. Sharma, Secretary General,  
Udaipur Environmental Group, Environmental Cottage,  
206, Ashok Nagar, Udaipur-313001, Rajasthan
200. Shri Vijay Narain, Udaipur Environmental Action  
Group, Assistant Professor of Zoology,  
School of Basic Science & Humanities,  
University of Udaipur, Udaipur-313001,  
Rajasthan
201. Director, Urban Environment Institute,  
181, Rewa Haji Ali, Bombay-400026
202. Information Officer, Van Sharamik Sahakari Samiti,  
P.O. Manan, District Almora, Kumaon Hills, India
203. The President, Wildlife Conservation Society,  
Bhav Vilas, Bhavnagar, Gujarat
204. Shri U. K. Gopalan, Secretary,  
Working Group on Environmental Protection,  
Cochin Science Association,  
XLVI/1429 S.R.M. Road, Cochin,  
Kerala-682018
205. Mr. P. V. Thomas, Wards of Indian Nature,  
Puthenpura House, P.O. Kumily District, Idukki, Kerala
206. Prof. Dilip Bose, World University Services,  
Jadavpur University Unit, Calcutta-700032
207. The Administrator, World Wild Life Fund (India)  
Great Western Building, 1st Floor,  
Shahid Bhagat Singh Road, Bombay-400023
208. Chief Executive, Wildlife Association of South India,  
49, Richmond Road, Bangalore-560026
209. Hon. Secretary, Wildlife Conservation Society,  
6-1-471/C-30, Behind Library, Khairatabad,  
Hyderabad, A. P.-500004



210. The Secretary, Wild Life Preservation Society of India,  
6-Astley Hall, Dehradun, U. P.
211. Shri M. A. Parthasarthy, World Wild Life Fund,  
Southern Region, Hamsini, 12th Cross,  
Rajmahal Extension, Bangalore-560006
212. The Secretary, Youth Ecological Society of India,  
Ecological Section, Department of Botany,  
MS University of Baroda, Baroda-390007
213. Mr. Dalip Yardi, Youth Environmental Action Group,  
Youth Hostel, Padampura, Aurangabad-431001
214. Dr. Ashok Mittal, Youth & Environment,  
A-136, Saraswati Vihar, Delhi-110034
215. Dr. Pran K. Bhatt, Youth and Biosphere,  
Department of Limnology, Bhopal University,  
Bhopal, M. P.-462026
216. John S. Jacob, Zoological Club, Payyanur College,  
Edat P.O., Kerala-670327
217. Dr. A. K. Patra, Zoological Society of Orissa,  
Zoology Department, G. M. College,  
Sambhalpur-788004

**Additional List of Non-Government Organisations/  
Registered Societies.**

218. Dr. V. P. Kudesia, Academy of Environmental Sciences  
C-30, Shastri Nagar, Meerut-1, U.P.
219. Shri Murad K. Faize, Director, Blue Skies,  
28 K, Dubesh Marg, Bombay-400023
220. Dr. R. S. Thakore, Gujarat Science Academy,  
Physical Research Laboratory  
Navrangpura, Ahmedabad-380009
221. Prof. K. S. Swami, Indian Society for Comparative  
Animal Physiology, Department of Zoology,  
S. V. University, Tirupati-517502
222. Shri N. Dasgupta, Secretary,  
Indian Society of Engineers,  
12-B, Netaji Subash Marg, Calcutta-700001

## PART I

19

223. The Secretary, Indian Society for Himalayan Studies,  
Rengco Campus, Hazratbal,  
Srinagar-190006
224. The Secretary, Kashmir Environmental Society,  
Ecology Laboratory, Department of Botany,  
University of Kashmir, Srinagar
225. Dr. N. Parthasarathy, Madras Science Foundation,  
86, N. K. Amman Koil Street,  
Mylapore, Madras- 4
226. Shri V. N. Kak,  
Rajasthan Environmental Preservation Society,  
Vasundhra, Tonk Road, Jaipur, Rajasthan
227. Ms. Mariam Modi, Convenor  
Save Mahabaleshwar Panchgani Society,  
Stone House, Mahabaleshwar- 412806
228. Shri Sewak Sharan,  
Sri Brindawan Swaroopothan Paribhawana,  
Srihit Sewak Sadan, Attakamba  
Sri Vrindawan-281121
229. The Secretary, Wind Energy Society of India,  
D-409, Defence Colony,  
New Delhi-110024
230. Shri Samar Singh, Chairman,  
High Range Game Preservation Association,  
Neti Gudi Estate, Munnar-605612, Kerala
231. Smt. Radha Bhatt, Secretary,  
Kasturba Mahila Uthan Mandal Kasauni,  
Lakshmi Ashram, Kasauni-263639, U.P.
232. Shri Sunderlal Bahuguna,  
Bhartiya Navajivan Mandal,  
Village Silyara (Via Ghansai), Tehri-249001, U.P.
233. Shri M. S. Simpana, Agrarian Centre,  
2, Lal Bagh Road, Bangalore-560001, Karnataka
234. Shri Madhav Gadgil, Technical Coordinator,  
Elephant Task Force, Centre for Theoretical Studies,  
Indian Institute of Science,  
Bangalore-560001, Karnataka

235. Shri P. V. L. N. Rao, General Manager,  
Natural Resources Development Cooperative  
Society Limited  
3-5-886/4-A, University Road, Hyderabad-500009  
Andhra Pradesh
236. Dr. D. N. Sen, Reader in Ecology, GEOBIOS  
P.O. Box No. 14, University of Jodhpur,  
Jodhpur-342001, Rajasthan.
237. Mr. J. S. Patel, Director,  
Gokhale Education Society's Agricultural Institute,  
Kossad Hill-400173, Maharashtra
238. Prof. M. L. Dantwala, President,  
Indian Society of Agricultural Ecologies  
46-48, Esplanade Mansions  
M. G. Road, Bombay-400023, Maharashtra
239. Sri Kashyap Mankodi, Sarvodaya Centre, Pindval,  
Opp. First Gate, Atul-396020 Gujrat
240. Shri A. Bhargava, Convenor  
MEDICO Friends Circle (MFC)  
21, Nirman Society, Vadodara-390005, Gujrat
241. Mrs. Vidya, Manager, SHRAMBHARATI  
Khadi Gram, Monghyr-811201, Bihar
242. Dr. Jayanarayan Jayaswal,  
Dr. Jayaranarayan Nature Cure Centre  
Hindustan Colony, Amarasti Road,  
Nagpur-440002, Maharashtra
243. Shri P. M. Poddar, Coordinator,  
Shri Aurobindo Society, Society House,  
Pondicherry-605002
244. Shri B. Haragopala Rao, Coordinator,  
Environment Study Group, Benaras Hindu University,  
Varanasi-221005, U.P.
245. Dr. B. Prakash, Convenor and Executive Director,  
Vigyan Shiksha Kendra (VSK), Attarra-210201, U.P.
246. Shri L. C. Tyagi, Office Secretary,  
Banwasi Sewa Ashram, Govindpur,  
Mirzapur-231001, U.P.

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247. Shri A. M. Muddie, President, Himalayan Club,  
W-13, Greater Kailash-1, New Delhi-110048
248. Shri C. Ramachandran, Honorary Director,  
The Gandhi Gram Rural Institute  
Gandhigram, Madurai-624302, Tamil Nadu
249. Dr. A. S. Vyas, Gujarat Environmental Action Group,  
Department of Botany, Gujarat University,  
Ahmedabad-380001
250. Shri D. K. Bhatt, President, Students Environment  
Club, M.B. College, Department of Zoology,  
Udaipur-313001, Rajasthan
251. Shri Rajendra Kumar, Secretary,  
Students Environmental Action Group,  
Commerce Department, Government College,  
Bhilwara-311001, Rajasthan
252. Ms. Sushila Sharma, Secretary,  
Mahila School Club for Environmental Action,  
Mahila Mandal, Udaipur-313001, Rajasthan
253. Prof. R. Misra, Indian Environmental Society,  
Action Group in Varanasi, Department of Botany,  
Benaras Hindu University.  
Varanasi-221005, U.P.
254. Dr. S. Chandra, Scientist in Charge of Palynological  
Section, Bose Institute,  
93/1 A.P.C. Road, Calcutta-700009, West Bengal
255. Secretary, Allahabad Youth Forum for Environmental  
Studies and Conservation, Department of Botany,  
University of Allahabad, Allahabad-211002, U.P.
256. Secretary, Botany Environmental Action Group,  
Department of Botany, Institute of Science,  
Madam Cama Road, Bombay-400032, Maharashtra
257. Secretary, Jaipur Environmental Association,  
Department of Botany, University of Rajasthan,  
Jaipur-302004, Rajasthan
258. Secretary, Moradabad Environmental Action Group,  
Department of Botany, Hindu College,  
Moradabad-244001, U.P.

69476



259. Shri Khanak V. Parekh, Hon. State Director,  
All India Gram Sahyog Samaj,  
36 Karanpara, Meghji Wala Building, Rajkot-Gujarat
260. Dr. Tarak Kate, Secretary, Wardha Nisarga Mandal,  
Dr. Gopalrao Bhalerao Lane, Socialist Square,  
Wardha-442001
261. Shri Sundara Narayana Patro, Secretary,  
Orissa Environmental Society,  
P.O. Nuvapada, Ganjam-761011
262. Shri S. K. Patnaik, Hon. Secretary,  
Nature and Wildlife Conservation Society of Orissa,  
145, Shaheed Nagar, Bhubaneshwar-Orissa
263. Dr. Vivek Paranjape, President,  
The Friends of Animals Society,  
13, Parijat, Behind Peshawa Park, Pune-411030
264. Dr. G. S. Yonzone, General Secretary,  
Himalayan Science Association, Darjeeling  
Flat 4, Valima Cottage, Hooker Road,  
Darjeeling-734101
265. Dr. A. R. Subramaniam, Secretary & Treasurer  
Indian Agro Meterological Society,  
Department of Meteorology and Oceanography  
Andhra University, Waltair-530003
266. Shri J. K. Mishra, Secretary, Vaanaspatik Club,  
Department of Botany,  
Sri Jai Narain Degree College, Lucknow-226001
267. Shri D. C. Dhar, Secretary, Meghalaya Science Society,  
Jess Cott. Lower New Colony, Shillong-793003
268. Dr. L. S. Venkataraman, Director,  
Institute for Social and Economic Change,  
Nagarbhavi P.O., Bangalore-560072
269. Mr. R. Jagadisan, Registrar,  
Institute for Techno-Economic Studies,  
76, Harrington Road, Madras-600031
270. Prof. K. M. Kundnami, Secretary,  
Bombay Institute of Environmental Technology,  
124, Dinshaw Wacha Road, Bombay-400020

271. Shri Shiv Khare,  
Youth and Family Planning Programme Council,  
F-13, South Extension Part-I, New Delhi-110049
272. Dr. M. Y. H. Hakim, Director,  
Sanjay Gandhi Institute of Environmental  
Biology and Medical Entomology, Kashipur  
Samashtipur-848101, Bihar
273. Mr. Sydney Rebeiro, President, CONVERSAZIONE  
C 45, Jungpura Extension, New Delhi-110014
274. Shri Mahendra Singh Kunwar,  
Dasholi Gram Swarajya Mandal, Mandir Marg,  
Gopeshwar Market,  
Gopeshwar, Distt. Chamoli, Uttar Pradesh-246401
275. Mr. Jamshed Bhabha, President, Friends of the Trees,  
1/10, Tata Sons Private Limited,  
Bombay House, Mody Street, Bombay-400001
276. Mr. Kisan Mehta, President, Save Bombay Committee,  
123-M. G. Road, Bombay-400023
277. Mrs. Dilnavaz Variave, Save Silent Valley Committee,  
C/o Bharat Tiles and Marbles Pvt. Ltd.,  
32, Appollo Street, Bombay-400001
278. Mr. M. R. Pai, Forum of Free Enterprise,  
"Tiramal Mansion", 3rd floor,  
235 D. N. Road, Bombay-400001
279. Prof. Manubhai Shah,  
Consumer Education and Research Centre,  
Thakorebhai Desai Smarak Bhawan,  
Near Law College, Ellisbridge, Ahmedabad-380006
280. Chairman, Asian Elephant Group, Hornbill House,  
Shahid Bhagat Singh Road, Bombay-400023
281. Manager, Centre for Himalayan Resources  
Investigation and Survey,  
Old Post Office Building, Hrishikesh-24981, U.P.
282. Administrator,  
Data Centre Natural Resources, W.W.F.(I)  
18, Spencer Road, Fraser Town Post Office,  
Bangalore-560005



283. Shri K. Narayan Nair, Centre for Development Studies, Ulloor, Trivandrum-695011
  284. Co-ordinator, Institute of Development Studies, Leela Vihar, Manasa Gangotri, Mysore-570006
  285. Secretary, Institute for Himalayan Studies and Regional Development, Garhwal University, P.O. Box 12, Srinagar-Garhwal
  286. Editor,  
International Journal of Ecology and Envtl. Science  
C/o Department of Botany,  
University of Rajasthan, Jaipur-302004
  287. Secretary, Soil Conservation Society of India,  
Hazaribagh, Bihar-India
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## PART I

25

**Institutes and Organizations at Calcutta engaged  
in the Study of various aspects of Environmental  
Science and Life Science.**

## A

*(Universities teaching Environmental Science)***1. Calcutta University M.phil Programme on Environmental  
Science***Collaborating Departments\**

- (a) Life Science Centre (Collaborating Centre for running the Course),  
35, Ballygunge Circular Road, Calcutta-700019  
Phone : 47-3681
- (b) University College of Agriculture,  
35, Ballygunge Circular Road, Calcutta-700019  
Phone : 47-3681
- (c) Department of Anthropology,  
35, Ballygunge Circular Road, Calcutta-700019  
Phone : 47-3681
- (d) Department of Biochemistry,  
35, Ballygunge Circular Road, Calcutta-700019  
Phone : 47-3681
- (e) Department of Botany,  
35, Ballygunge Circular Road, Calcutta-700019  
Phone : 47-3681
- (f) Department of Geography,  
35, Ballygunge Circular Road, Calcutta-700019  
Phone : 47-3681
- (g) Department of Geology,  
35, Ballygunge Circular Road, Calcutta-700019  
Phone : 47-3681

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\*Further information regarding Regulation and Syllabus of the M.Phil course in Environmental Science is given in Part III.

- (h) Department of Zoology,  
35, Ballygunge Circular Road, Calcutta-700019  
Phone : 47-3681
- (i) Department of Applied Mathematics,  
92, Acharyya Prafulla Chandra Road, Calcutta-700009  
Phone : 35-9186
- (i) Department of Chemistry,  
92, Acharyya Prafulla Chandra Road, Calcutta-700009  
Phone : 35-9186
- (k) Department of Physics,  
92, Acharyya Prafulla Chandra Road, Calcutta-700009  
Phone : 35-1993
- (l) Department of Physiology,  
92, Acharyya Prafulla Chandra Road, Calcutta-700009  
Phone : 36-9186
- (m) University Service and Instrumentation Centre,  
92, Acharyya Prafulla Chandra Road, Calcutta-700009  
Phone : 35-9186

## B

*(Institutes dealing in Environmental Science and Life Science)*

1. All India Institute of Hygiene and Public Health,  
110, C. R. Avenue, Calcutta-700073,  
Phone : 34-5271
2. Anthropological Survey of India,  
27, Jawaharlal Nehru Road, Calcutta-700016,  
Phone : 23-2853
3. American Centre,  
7, Jawaharlal Nehru Road, Calcutta-700016,  
Phone : 23-7411
4. Bengal Immunity Research Institute,  
39, A. J. Bose Road, Calcutta-700017,  
Phone : 24-2921
5. Bangiya Bijnan Parishad,  
P-23, Raja Rajkrishna Street, Calcutta-700006,  
Phone : 55-0660

## PART I

27

6. Bhabha Atomic Research Centre,  
Sec-1, BI-AF, Bidhan Nagar, Calcutta-700064,  
Phone : 36-5207
7. Bidhan Chandra Krishi Visva Vidyalaya,  
Mohanpore, Nadia, West Bengal
8. Birla Industrial and Technological Museum,  
19A, Gurusaday Road, Calcutta-700019,  
Phone : 43-5405
9. British Council, 5, Shakespeare Sarani,  
Calcutta-700016, Phone : 44-5378
10. Bose Institute, 93/1, A. P. C. Road,  
Calcutta-700009, Phone : 35-2402
11. Botanical Survey of India, Botanical Garden,  
Howrah-3, Phone : 67-5357
12. Burdwan University, Burdwan, Calcutta Camp Office,  
8, Indra Ray Road, Bhowanipur, Calcutta-700025
13. Calcutta Port Trust, 15, Strand Road,  
Calcutta-700001, Phone : 22-3451
14. Central Food Laboratory, 3, Kyd Street,  
Calcutta-700016, Phone : 24-8896
15. Calcutta Metropolitan Development Authority (CMDA),  
3A, Auckland Place, Calcutta-700017, Phone : 22-1681
16. Central Drug Reserach Institute, 1, Kyd Street,  
Calcutta-700016, Phone : 24-2406
17. Central Inland Fishery Research Institute,  
Barrackpore, 24- Parganas, W. B. Phone : 53-0388
18. Center for Study of Man and Environment,  
Geology Department, Presidency College,  
Calcutta-700073, Phone : 34-1870
19. Chittaranjan National Cancer Research Centre,  
37, S. P. Mukherjee Road, Calcutta-700026  
Phone : 47-3045
20. Cultural Research Institute, P1/4, CIT Scheme VII,  
VIP Road, Kankurgachi, Calcutta-700054



21. Calcutta Improvement Trust,  
P-16, India Exchange Place Extn.,  
Calcutta-700073
22. Corporation of Calcutta,  
5, S. N. Banerjee Road, Calcutta-700013
23. C. P. W. D., Nizam Palace,  
234/1, Acharya J. C. Bose Road, Calcutta
24. Department of Environment, Govt. of West Bengal,  
Writers Buildings, Calcutta-700001,  
Phone : 22-6016
25. Friends of Trees, Tata Centre, 14th Floor,  
43, Chowringhee Road, Calcutta-700071,  
Phone : 45-7165
26. Food Technology Department, Jadavpur University,  
Raja S. C. Mullick Road, Calcutta-700032  
Phone : 72-4044
27. Forest Department, Government of West Bengal,  
Social Forestry Section,  
P-16, India Exchange Place Extension,  
Calcutta-700073, Phone : 26-5304
28. Geological Survey of India, 27, Jawaharlal Nehru Road,  
Calcutta-700016, Phone : 23-3771
29. Indian Institute of Chemical Biology,  
4, Raja S. C. Mullick Road, Calcutta-700032,  
Phone : 46-9197
30. Indian Statistical Institute,  
203, B. T. Road, Calcutta-700035,  
Phone : 52-6694
31. Indian Museum,  
27, Jawaharlal Nehru Road, Calcutta-700016,  
Phone : 23-0742
32. Indian Institute of Environment and Ecological Sciences,  
2A, Shakespeare Sarani, Calcutta-700017
33. Institute of Basic Medical Sciences,  
244, A. J. Bose Road, Calcutta-700020,  
Phone : 43-2036

## PART I

29

34. Institution of Engineers (India), 8, Gokhale Road, Calcutta-700020, Phone : 44-8347
35. Jute Agriculture Research Institute, Nilgunge, Barrackpore, Phone : 53-0849
36. Jadavpur University, Raja S. C. Mullick Road, Calcutta-700032, Phone : 72-4044
37. Kalyani University, Kalyani, Nadia, Phone : Kalyani-220
38. Ministry of Education & Culture, National Service Scheme, Zonal Center II (NSS) E.Z., 25B, Park Street, Calcutta-700016
39. National Environmental Engineering Research Institute, 23, R. N. Mukherjee Road, Calcutta-700001, Phone : 23-8792
40. National Atlas Organization, 50A, Gariahat Road, Calcutta-700019, Phone : 47-9924
41. National Library, Belvedere, Alipore, Calcutta-700027, Phone : 45-5381
42. National Sample Survey Organization, SDRD & DPD Divisions (Hd. Qrs.), 25A, Shakespeare Sarani, Calcutta-700017, Phone : 44-8389
43. National Bureau of Soil Survey & Land Use Planning (ICAR), 23, Netaji Subhas Chandra Bose Road, Calcutta-700047, Phone : 24-9172
44. National Test House, 11/1, Judges Court Road, Calcutta-700027, Phone : 45-9231
45. Netaji Institute for Asian Studies, 1, Woodburn Park, Calcutta-700020, Phone : 43-3160
46. North Bengal University, Raja Rammohanpur, Dist. Darjeeling, Calcutta Camp Office, P-251/2A, S. P. Mukherjee Road, Calcutta-700026, Phone : 22-4654 & 41-1609
47. Public Works Department, S. E. Presidency Circle, New Secretariate Building, Calcutta-700001

48. Ramkrishna Mission Institute of Culture, Golpark, Calcutta-700029, Phone : 46-3431
49. Science Association of Bengal, 104, Diamond Harbour Road, Barisa, Calcutta-700008
50. School of Tropical Medicine, Chittaranjan Avenue, Calcutta-700073, Phone : 34-1862
51. Visva Bharati, Santiniketan-731235, West Bengal
52. West Bengal Prevention and Control of Pollution Board, Industry House, 2nd Floor, 10, Camac Street, Calcutta-700017
53. West Bengal Smoke Nuisance Directorate, 60B, Chowringhee Road, Calcutta-700020, Phone : 44-0232
54. West Bengal Smoke Nuisance Observatories, New Secretariate Buildings, Calcutta-700001, Phone : 23-6271
55. Zoological Survey of India, 34, Chittaranjan Avenue, Calcutta-700012, Phone : 27-0202

## C

*(Learned Societies at Calcutta dealing in Environmental Science and Life Science)*

1. Asiatic Society, 1, Park Street, Calcutta-700016, Phone : 24-0539
2. Agricultural Society of India, 35, Ballygunge Circular Road, Calcutta-700019
3. Bird Watchers Society of Bengal, 8, Lindsay Street, Calcutta-700016
4. Botanical Society of India, Botanical Garden, Howrah-3.
5. Botanical Society of Bengal, 35, Ballygunge Circular Road, Calcutta-700019

## PART I

31

6. Explorer's Club of India, 10, Govt. Place (East),  
Calcutta-700001.
7. Geographical Society of India,  
35, Ballygunge Circular Road, Calcutta-700019
8. Geological, Mining and Metallurgical Society of India,  
35, Ballygunge Circular Road, Calcutta-700019
9. Hemboldt Club, Max Mueller Bhavan,  
8, Pramathesh Barua Sarani, Calcutta-700019
10. Institute of Landscape, Ecology and Ekistics.  
35, Ballygunge Circular Road, Calcutta-700019
11. Indian Anthropological Society,  
27, Jawaharlal Nehru Road, Calcutta-700016.
12. Indian Association of Biological Sciences,  
Life Science Centre,  
35, Ballygunge Circular Road, Calcutta-700019
13. Indian Chemical Society, 92, A. P. C. Road,  
Calcutta- 700009
14. Life Science Teacher's Association, Life Science Centre,  
35, Ballygunge Circular Road, Calcutta-700019
15. Physiological Society of India,  
92, A. P. C. Road, Calcutta-700009
16. Prakiti Sansad, 206, Harish Mukherjee Road,  
Calcutta- 700026
17. Pran O Paribesh, Botany Deptt.  
University College of Science  
35, Ballygunge Circular Road, Calcutta-700019
18. School of Fundamental Research,  
18, Mustaque Ahmed Street, Calcutta-700029
19. S. Calcutta Youth Hostel Asso.,  
77, Southern Avenue, Calcutta-700029
20. Unnayan, 36/1A, Garcha Road, Calcutta-700019
21. Vivekananda Nidhi, 86F, Monoharpukur Road,  
Calcutta-700029



22. World Wildlife Fund—India,  
43, Chowringhee Road, (1st Floor).  
Tata Centre, Calcutta-700051
  23. Wild Life Preservation Society of Eastern India,  
Rafi Ahmed Kidwai Road, Calcutta-700073
  24. Womens Voluntary Service, C/o Green Door,  
34, Rowland Road, Calcutta-700019
  25. Zoological Society, 35, Ballygunge Circular Road,  
Calcutta-700019
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## PART II

### Movie Films on Environmental Science and Life Science available at different Institutes and Organizations.

Name of the Institution : Life Science Centre, Calcutta University

Address of the Institution : 35, Ballygunge Circular Road, Calcutta-19

Person with whom correspondence should be made : Prof. T. M. Das

#### List of Films

##### *Services of Trees*

16mm. 11mins. Colour. English, Bengali & 13 other Indian languages. Producer : Films Division. This film depicts the indispensable role of Trees in controlling the delicate balance in nature and services to mankind. Theme and technical expertise : T. M. Das.

##### *Cell Division*

16mm. 20mins. Colour. Silent English subtitle. Cine-photo-micrographic study with Interference-microscopy of Mitosis at different temperatures of the medium. Producer : T. M. Das, A. C. Hildebrandt and A. J. Riker, Wisconsin University, U.S.A.

##### *The Dynamic Activities of TMV Virus Crystals in a living Tobacco Leaf-hair Cell*

16mm. 15mins. Colour. Silent English subtitle. Cine-photo-micrographic study with Interference-microscopy of an isolated leaf-hair cell of tobacco infected with RNA Tobacco Mosaic Virus. Pro-

ducer : T. M. Das, Naresh Chandra, A. C. Hildebrandt, Wisconsin University, U.S.A.

*Absorption of Particulate Pollutants by Leaf-hair Cells of Plants. Transport of Macro-molecules through Membrane. Displacement of Nucleus by Physical stress*

16mm. 15mins. Colour. Silent, English subtitle. Cine-photo-micrographic study with Interference-microscopy of an isolated cell in which above phenomena have been depicted. Producer : T. M. Das, A. C. Hildebrandt and A. J. Riker, Wisconsin University, U.S.A.

*The Dynamic Activities of a living Cell with variation of Temperature and age*

16mm. 20mins. Colour. Silent, English subtitle. Cine-photo-micrographic study with Phase and Interference microscopy of an isolated cell. Producer : as above.

*The Life and Death of a Cell*

16mm. 20mins. Black & White. Silent, English sub-

title. Cine-photomicrographic study of a living and dying cell exposed to low temperature. Producer : as above.

#### *Snakes and Snake-Park*

16mm. 23mins. Colour. English. A wonderful film on various poisonous and non-poisonous snakes of India. Their habits and habitats and role in the food chain. Snake-bite treatment and role of snake-park. Producer : Saraswaty Nilayam, Madras-600024.

#### *National Parks, Gardens and Cities of West Coast—U.S.A.*

8mm. 60mins. Colour. Silent. Grand Canyon National Park, Yellow Stone National Park, Salt lake, Disneyland, Marine land, San Francisco, Los Angeles, Denver, Rockey Mountain, Chicago. Producer: T. M. Das.

#### *Niagara Falls, Cities and University Campus of East Coast—U.S.A.*

8mm. 60mins. Colour. Silent. Niagara Falls, New York city, Purdue University Campus, Pennsylvania State College Campus. Flowers of spring and autumn. Producer: T. M. Das.

#### *Winter at Wisconsin*

8mm. 60mins. Colour. Silent. Life activity in an environment when outside temperature is -20°C. The whole lake is frozen into ice, Ice-hockey and other winter sport on the lake. Fishing through the ice. Flowers of early spring. Producer: T. M. Das.

#### *World Fair, Paris and Switzerland*

8mm. 60mins. Colour. Silent. A colourful film on World Fair, Paris and Switzerland. Producer: T. M. Das.

#### *35mm Colour Slides on*

*Principles of Strategy of Survival in Nature*

*Plants and Pollution*

*Indian Environment and Pollution*

*Pollution and Evolution*

*Air Pollution*

*Water and Life*

*Endangered Plants*

*Aging and Senescence*

*Value of the Tree*

*Living Himalayas*

#### **Terms of hiring and other facilities**

Which films are available on loan basis : All as per list.

## PART II

35

Security deposit if any : Nil, Films are to be accompanied by our staff.

Projector and Projectionist : Projector not available.  
Projectionist available.

Cost of hiring at Calcutta : Nil, T.A. & D.A. of the staff to be paid.

Cost of hiring outside Calcutta : Nil, T.A. & D.A. of the staff to be paid.



Name of the Institution : Zoological Survey of India.

Address of the Institution : 27, Jawaharlal Nehru Road,  
Calcutta-700016

Name of the person to be contacted : Director, Attn. Dr.  
D. K. Kackar, Superintending Zoologist.

## List of Films

*Gir Forest*

16mm. 10mins. Silent.  
colour.

*Taxidermist and his Art*

16mm. 24mins. Sound.  
B. W.

*Bird Skining Taxidermist (1)*

16mm. 10mins. Silent.  
colour.

*Bird Skining Taxidermist (2)*

16mm. 12mins. Silent.  
colour.

*Fishing Method in Kashmir,  
Dal Lake.*

16mm. 10mins. Silent.  
colour.

*Life cycle of a Frog.*

16mm. 12mins. Sound.  
(B.W.) English.

*Animal of Back Bone*

16mm. 10mins. Sound.  
(B.W.) English.

*World of Water*

16mm. 12mins. Sound.  
colour. English.

*Indian Elephant*

16mm. 12mins. Silent.  
colour.

*Kazi Ranga National Park*

16mm. 10mins. Silent.  
colour.

*Manas Sanctuary*

16mm. 8mins. Silent.  
colour.

*Nesting Time*

16mm. 8mins. B.W.

<i>Hailey National Park</i>	<i>Locomotion of Snakes</i>
16mm. 10mins. Sound. colour, English.	16mm. 12mins. Sound. colour, English.
<i>Kanha National Park</i>	<i>Introducing the Reptiles</i>
16mm. 10mins. Sound. colour, English.	16mm. 12mins. Sound. colour, English

### Terms of hiring and other facilities

Which films are available on loan basis : All as per list.  
Security deposit if any : Nil.  
Projector / Projectionist available : May be made available if  
not otherwise occupied.  
Cost of hiring at Calcutta : Nil. (Outside Calcutta TA / DA  
of staff to be paid)  
Any other relevant information : Films are to be accompanied  
by staff of Photography Section, Z.S.I. Overtime  
allowances for staff to be paid by agency using the  
films.



Name of the Institution : Chief Conservator of forests,  
West Bengal

Address of the Institution : P 16, India Exchange Place  
Extn., 3rd floor, Calcutta-700073

Person with whom correspondence should be made : as  
above

### List of Films

<i>Dooars, lovely Dooars</i>	<i>The ravaged elements</i>
16mm. 22mins. Col. Bengali	16 mm. 11mts. Col. English
	<i>Tropical Wilderness</i>
<i>Bamboo</i>	16mm. 15mins. Col. English
16mm. 20mins. Col. Music only	<i>Big horn</i>
	16mm. 10mins. Col. English
<i>Social forestry</i>	<i>Our forests</i>
16mm. 10mins. Col. Bengali	35mm. 20mins. Col. Bengali



### **Terms of hiring and other facilities**

Which films are available on loan basis : All films mentioned above

**Security deposit if any : Nil**

Projector/Projectionist : Not available

**Cost of hiring at Calcutta : Nil**

**Outside Calcutta : Nil**

**Any other relevant information :** The films are available only at the time when those are not required for the Forest department.

1

Name of the Institution : French Cultural Centre

Name of the Institution : French Cultural Centre  
Address of the Institution : 24 Park Mansions, Park Street,  
Calcutta-700016

Person with whom correspondence should be made : Film Librarian

## List of Films

<i>Making Ends Meet</i> (4BAI)	<i>Le Livre des oiseaux</i> (4BAI 5)
16mm. 13mins. B.W. English	16mm. 20mins. Col. English
<i>L'Aigrette Garzette</i> (4BAI 2)	<i>Le Dragon du Komodo</i> (4BAI 7)
16mm. 9mins. coloured English	16mm. 15mins. coloured French
<i>Les Manchots Empereurs</i> (4BAI 4)	<i>Images Des Mondes Perdus</i> (4BAI 10)
16mm. 15mins. B.W. French	16mm. 14mins. coloured French

#### **Terms of hiring and other facilities**

Which films are available on loan basis : All of them

**Security deposit if any : Nil**

Projector/Projectionist available : Not available

**Cost of hiring at Calcutta : Nil**

Outside Calcutta : Rs. 70.00 (only if to be sent by post)

Any other relevant information : None



Name of the Institution : Indian Statistical Institute

Address of the Institution : 205, B. T. Road,  
Calcutta-700035

Person with whom correspondence is to be made : R. L.  
Brahmacharya, Sukhendu Ghose

#### List of Films

About 200 Films from IWF, Germany are available as a partial archive of IWF

<i>Embryonic development in the Snail</i>	<i>Vorticella</i>
16mm. Colour. 10mins.	16mm. Colour. 4mins.
<i>Hydra</i>	<i>African Wild Life</i>
16mm. Colour. 8mins.	8mm. Colour.
<i>Rotifer</i>	<i>Andaman Marine Organisms</i>
16mm. Colour. 4mins.	8mm. Colour

Which films are available on loan basis : All the films as per list

Projector/Projectionist available : Not available



Name of the Institution : Birla Industrial and Technological Museum.

Address of the Institution : 19A, Gurusaday Road,  
Calcutta-700019

Person with whom correspondence should be made : The Director.

#### List of Films

<i>Life cycle of a pinmold</i>	<i>Beginning of Life</i>
16mm. 10mins. Black-white English	16mm. 21 mins. Col. English
<i>Life in a drop of water</i>	<i>Embryonic development of the chick</i>
16mm. 11mins. B.W. English	16mm. 26mins. Col. English

<i>Heredity and Parental Development</i>	<i>Reptiles and their characters</i>
16mm. 21mins. B.W. Bengali	16mm. 14mins. Col. English
<i>Genetics : Functions of DNA and RNA</i>	<i>Birds and their characters</i>
16mm. 12mins. B.W. English	16mm. 11mins. B.W. English
<i>Use of Forests</i>	<i>Fish and their characters</i>
16mm. 11mins. B.W. English	16mm. 11mins. B.W. English
<i>Who lives here</i>	16mm. 11mins. B.W. English
16mm. 21mins. Col. English	<i>A day at zoo</i>
<i>Colour of Life</i>	16mm. 11mins. B.W. English
16mm. 24mins. Col. English	<i>Grasshopper : a typical insect</i>
<i>Flowers of the hive</i>	16mm. 5½mins. B.W. English
16mm. 11mins. B.W. English	<i>Honey bee : a social insect</i>
<i>A tree is a living thing</i>	16mm. 5½mins. B.W. English
16mm. 11mins. Col. Hindi	<i>Island of Turtle</i>
<i>How trees live</i>	16mm. 8mins. Col. English
16mm. 16mins. B.W. English	<i>Swan's lake</i>
<i>About Flowers</i>	16mm. 15mins. Col. English
16mm. 10mins. Col. English	<i>Where the deer roam</i>
<i>Climbing Plants</i>	16mm. 21mins. Col. English
16mm. 14mins. Col. English	<i>Chameleon</i>
<i>Photosynthesis : Chemistry of food making</i>	16mm. 8mins. Col. English
16mm. 14mins. Col. English	<i>World in a marsh</i>
	16mm. 20mins. Col. Hindi



<i>Conquered Instinct</i>	<i>Birds and their home</i>
16mm. 21mins. B.W. English	16mm. 10mins. Col. English
<i>Making of balanced aquarium</i>	<i>Deer family</i>
16mm. 11mins. B.W. English	16mm. 20mins. Col. English
<i>Zoo Babies</i>	<i>Small animals of the plain</i>
16mm. 11mins. Col. English	16mm. 20mins. Col. English
<i>Crocodile hunters</i>	<i>Among fish</i>
16mm. 10mins. B.W. English	16mm. 11mins. Col. English
<i>Silver thread</i>	<i>Buffalo : majestic symbol of the plain</i>
16mm. 17mins. B.W. English	16mm. 11mins. Col. English
<i>Language of the bee</i>	<i>Butterfly mystery</i>
16mm. 15mins. Col. English	16mm. 10mins. Col. English
<i>What's under the ocean</i>	<i>Waterfowl : a resource in danger</i>
16mm. 14mins. B.W. English	16mm. 10mins. B.W. Hindi
<i>Introducing insects</i>	<i>Wildlife in the rockies</i>
16mm. 16mins. B.W. Hindi	16mm. 10mins. B.W. Hindi
<i>Secrets of the bee world</i>	<i>Butterfly</i>
16mm. 15mins. Col. English	16mm. 8mins. Col. English
<i>Secrets of the ant and the insect world</i>	<i>I'm a mammal and so are you</i>
16mm. 15mins. Col. English	16mm. 4mins. Col. English
<i>Secret of the underwater world</i>	<i>Jakies visit the zoo</i>
16mm. 15mins. Col. English	16mm. 11mins. B.W. English

<i>Origin and evolution of man</i>	<i>Other World</i>
16mm. 24mins. B.W. English	16mm. 22mins. Col. English
<i>Annals of Life</i>	<i>How green plants make and use food</i>
16mm. 21mins. Col. English	16mm. 13mins. B.W. English
<i>How a virus kills</i>	
16mm. 33mins. B.W. English	<i>Colour slides 35mm.</i>
<i>Life</i>	<i>Vanishing forests</i>
Super 8mm. 15mins. B.W. English	91 slides with commentary on cassette tape
<i>Environmental Science</i>	<i>A blue print for survival</i>
<i>Paradise lost</i>	77 slides with commentary on cassette tape
16mm. 5mins. Col. Music only	

We do not hire or lend films. The stock maintained by us is for the use of this museum and its mobile and district units.



Name of Institution : Department of Information & Cultural Affairs, Government of West Bengal  
Address : Writers Buildings, Calcutta-700001

### List of Films

<b>Agriculture &amp; Food</b>	<i>Dhan Chaser Pragati</i>
<i>Bristi Chhara Fasal Fale</i>	35mm. 1015ft. 10½mins. Better cultivation of paddy in West Bengal
35mm. 2000ft. 20mins. The film shows that we get sufficient crops with the help of pump sets in rural areas	
<i>Ekti Rutir Kahini</i>	<i>Laksha Chaser Katha</i>
35mm. 255ft. 22mins. A Quickie on wastage of food	35mm. 1015ft. 10½mins. Lac cultivation showing the beginning stages

<i>Secher Nutan Utsa</i>	has saved many people from the damage of flood
35mm. 1015ft. 10½mins. Deep tube-well irrigation	<i>Hinglow (Project)</i>
<i>Sashaydi Rakshan</i>	35mm. 461.77 mts. 18½mins.
35mm. 1015ft. 10½mins. Activities of the State Agricultural Research Centre	Hinglow is a project of Birbhum District. The villages have got irrigation facilities of cultivation in the said district
<i>Unasattarer Chasi</i>	<i>Tista joy jatra</i>
35mm. 1340ft. 19½mins. On cultivation & land ownership of the farmer	1000ft. 10mins. The film is on irrigation
<b>Animal Husbandary and Dairy Development</b>	<i>Sonar Fasal</i>
<i>Godhaney Haiba Dhani</i>	606 mts. 21mins. On irrigational project at Hinglow
35mm. 1062ft. 12mins. On cattle development	<i>Gramer Nam Harishchandrapur</i>
<i>Ankurey Binash</i>	606 mts. 20mins. Harishchandrapur is a beautiful village in the district of Malda. The villagers have got irrigation facilities of cultivation
35mm. 16mm. 1015ft. 10½mins. Cattle care and mobile veterinary in the rural areas	<b>Cottage Industry</b>
<b>Irrigation</b>	<i>Ceramics (Coloured)</i>
<i>Karuna Dharai Eso</i>	1505ft. 15mins. Processing of ceramic products
35mm. 1484ft. 17½mins. Documentary film on Kangsabati project	<i>Charma Silper Ittibritta</i>
<i>Mahananda Bandh Prakalpa</i>	1015ft. 10½mins. It is a film on tannery development of the Industry
35mm. 16mm. 1600ft. 18½mins. Mahananda Bandh has done ample services to men of North Bengal. This Prakalpa	<i>Doll Maker of Krishnanagar</i>
	2000ft. 20mins.

## PART II

43

Showing activities in the colony of the clay modellers at Krishnanagar	<i>Ghatak Bidai</i> 3990ft. 40mins. Short feature on social conflicts in a village society (C. D.)
<i>Hasta Silper Nabadiganta</i> 1015ft. 10½mins. Handicraft development	<i>Coke Chullir Abadan</i> 1015ft. 10½mins. The iron industry of Durgapur is developing day by day for coke oven
<i>Paschim Banglar Gajadanta Shilpa</i> 1015ft. 10½mins. Ivory crafts of Murshidabad	<i>Dandakaranya</i> 1015ft. 10½mins. Dandakaranya was a dense forest but now the condition of Dandakaranya has totally changed for the development
<i>Shone Shilpa</i> 817ft. 9mins. Cultivation and processing of Shone Fibres	<i>Bijan Bari</i> (Hindi and Bengali) 985ft. 10mins. The film is based on Tea Industry in North Bengal
<i>Sisal-ba-konga</i> 817ft. 8mins. Cultivation and processing of sisal	<i>Durgapur Coke Chulli</i> 933ft. 9½mins. The film depicts the progress of West Bengal for coke oven of Durgapur
<i>Silpey Nari</i> 1046ft. 11mins. Women engaged in different cottage craft	<i>Durgapur Parikalpana</i> (1st & 2nd) 580 & 731ft. 14mins. The film shows us this scheme and plants of Durgapur in the last 5 year plan has given a new shape of West Bengal for development
<b>Development and C. D.</b>	
<i>Durgapur Prakalpa</i> 1100ft. 11mins. Durgapur is developing day by day as because of planning	<i>Natun Pathe Darjeeling</i> 1808ft. 18½mins.

Development of Darjeeling is increasing day by day	<b>Education and Youth Activities</b>
<i>Gram Amader</i> 500mts. 20mins. On village development	<i>Kishorder janya bijnan</i> 2929ft. 29½mins. 35mm. 16mm. Science education for children produced during an exhibition on science for young groups
<i>Natun Diganta</i>  499mts. 20mins. 3 years activities of Left Front Government of West Bengal	<i>Mudran Shilpa</i> 1015ft. 10½mins. 35mm. 16mm. It is a film—school on printing technology
<b>Fisheries</b>  <i>Machher Sandhane</i> (coloured)  600ft. 6mins. West Bengal Govt. is trying to collect the fishes from different region of West Bengal for the benefit of the people	<i>Saksharatar Abhijan</i> 1015ft. 10½mins. 35mm. It is a film on literacy of West Bengal
<b>Development</b>  <i>Darjeeling Pragatir Pathe</i> (Coloured)  521mts. 18mins. Development of Darjeeling	<i>Acharjer Puraskar</i> 614mts. 20mins. 35mm. Short film on education
<b>Forest</b>  <i>Bannaya Pranir Bandhi Jiban</i>  1015ft. 11 3½ mins. 35mm. 16mm. The film shows the activities of wild animals	<i>Niraksharatar Abhishap</i> 500mts. 18mins. 35mm. On problems of uneducated mass (to educate the illiterate mass)
<i>Jaldapara Prani Sangrakhan Kendra</i>  1989ft. 20mins. 35mm. Game sanctuary at Jaldapara	<b>Electricity</b>  <i>Bidyut Byabaharer Nirapatty</i> 1015ft. 10½mins. 35mm. Use of electricity and safety measures
	<i>Sakti-o-shilpa</i> 1030ft. 11mins. 35mm. Use of electricity in small industry

<b>Health, Medical and Family Planning</b>	<i>Natun Alo (Leprosy)</i> (Bengali and Nepali)
<i>Abhahelar Biphad</i>	2000ft, 20mins. 35mm. 16mm. The film shows the necessity for planning.
995ft. 10mins. 35mm. The film shows the different rural health activities in West Bengal	<i>Dristidan</i>
<i>Heart Operation</i>	416.35mtrs. 15mins. 35mm. 16mm. The film shows how blindness can be cured by a cornia operation
<i>Jana Swastha</i>	<b>Tribal Welfare</b>
1015ft. 10½mins. 35mm. It is a film on health and hygiene	<i>Dhokra</i>
<i>Reen Parishad</i>	2010ft, 20½mins. 35mm. 16mm. Showing traditional crafts and the village of Dhokra tribe
2015ft. 20½mins. 35mm. The film shows the different activities of Blood bank in West Bengal	<i>Lodha Upajatir Bimukti-O-Bikash</i>
<i>Roge Theke Mukti</i>	1479ft, 15mins. 35mm. On the life of the Lodha tribe
1035ft, 10½mins. 35mm. 16mm. T.B. is a curable disease at present	<i>Pragatir Pathey Paschim Bangyer Adibasi</i>
<i>Sonit Sanchar</i>	1015ft, 10½mins. 35mm. 16mm. The film shows the Adibasi of West Bengal marching towards progress
1015ft, 10½mins. 35mm. 16mm. It is a film about transfusion of blood in a Hospital	<i>Santal Samaj-O-Sanskriti</i>
<i>Swasthya aney Samriddhi</i>	1015ft, 10½mins. 35mm. The film shows the Santal communities, their development and their social manner and culture
800ft, 8mins. 35mm. 16mm. It is a film on general health and hygiene	

**Traffic and Civic Sense***Nagarik Sabhyata*1015ft, 10½ mins. 35mm.  
16mm.

This is a film on civic sense

**Tourism and Places of Interest***Calcutta (Coloured)*

2000ft, 20mins. 35mm.

On tourist interest in  
Calcutta*Sundarban (Coloured)*2000ft, 20mins. 35mm.  
Showing beauty of the forests  
of Sundarban.*Problems of Darjeeling*499mtrs. 20mins. 35mm.  
Problems of Darjeeling town**Terms of Hiring and other Facilities**

Which films are available on loan basis : All as per list

Security deposit if any : Nil

Projector/Projectionist available : May be made available if  
not otherwise occupiedCost of hiring at Calcutta : Nil (Outside Calcutta TA/DA  
of staff to be paid)Any other relevant information : Films are to be accom-  
panied by staff of Information and Cultural Affairs  
Section. Overtime allowances for staff to be paid by  
agency using the films. All films are Black and White  
and 35mm. except mentioned otherwise.

Name of Institution : The British Council Library

Address : British High Commission, Mittal Tower 'A' Wing  
Nariman Point, Bombay-400 021**List of Films****General***Interpreting the Weather Map*

(909) Colour. 11 mins.

The construction and termino-  
logy used in the make-up of  
a synoptic chart. The cold  
and hot front. The work of  
weather stations and ships.  
The need for such activities for  
Air Traffic Control*The perception of Life*(1160) Colour. 20 mins.  
The new worlds revealed to  
Renaissance investigators after  
the invention of the magnify-  
ing glass and, subsequently,  
the compound microscope are  
demonstrated. The influences  
of the developmental aspects  
of microscopic methods on  
man's conception of the

nature of life and the smallest possible living units

The publication of the joint paper by Darwin and Wallace on Natural Selection in 1856

### *Chromatography*

(675) Colour. 20 mins.

Show how different techniques of chromatography can be used to social and industrial problems. Demonstration of the use of column Chromatography in examination of food and drink; it also illustrates the high performance of liquid chromatography and paper chromatography

### **Biology, Botany and Zoology**

#### *Behaviour of the Sea-Anemone*

(27) 12 mins.

Time-lapse cinematography reveals slow activity of the body and tentacles connected with feeding, and shows that slow locomotion along the sea-bed is constantly taking place

#### *The Ruthless One*

(1289) 20 mins.

The life-cycle of the desert locust showing the problem involved in controlling it. The mapping of locust movement at the Anti-Locust Research Centre in London and other laboratories

#### *Darwin and the insects of Brazil*

(688) Colour. 30mins.

### *Meiosis*

(113) Colour. 12 mins.

Introduced by a chart showing the fertilization—meiosis cycle uses animated drawings to show how the number of chromosomes in germ cells are halved

### *Marsh Fritillary Butterfly*

(1011) Colour. 15 mins.

The life history of this butterfly which lives on the scabious plant. (1959)

### *Mitosis*

(114) Colour. 9 mins.

The basic principles of cell division and a consideration of the behaviour of chromosomes during division

### *The frog—A life history*

(805) 15mins.

The process of fertilization and division of the egg. The phenomenon of gastrulation

### *Colourful Cuttle*

(636) Colour. 14mins.

The feeding, behaviour, colour changes, locomotion and self defence of the cuttle fish

### *Elsa the Lioness*

(736) 30mins.

This is the story of Elsa, the

**lion and her relationship with Adamsons family**

**Looking at animals—Animals that Gnaw and Burrow**

(102) Colour. 10mins.  
An elementary account of rodents i.e. rats, mice, squirrels, procupines, voles, hamsters, etc.

**Looking at animals—Deer and Antelopes**

(103) Colour. 10mins.  
Produced for young children to encourage them to look at animals with the eye of a naturalist

**Looking at animals—Monkeys**

(105) Colour. 10mins.  
This deals with monkeys of both the old and new world types

**Looking at animals—Sheep and Goats**

(107) Colour. 11mins.  
Sheep rearing here and in Australia. Goats behaviour rearing etc.

**The Hedgerow**

(863) Colour. 10mins.  
Trees, flowers, wild insects and animals of a Devonshire hedgerow are shown by seasons

**Looking at animals—Rabbits and Hares**

(106) Colour. 11mins.

The special characteristics of British rabbits and hares with particular reference to their locomotion, variation of their coats

**Looking at animals—Insect Eaters**

(104) 16mins. Silent  
The British members of the insectivores—small mammals like the hedgehog, mole and shrews—in typical situation and attitudes

**The Birth Life and Death of cells**

(37) 16mins. Silent  
A film which features time-lapse photography to show various activities of animals cells in tissue culture. Nerve, blood and muscle cells are the main focus

**Water in Biology**

(1627) Colour. 22mins.  
Water provides a stable environment for biological activity and is a basic essential in life cycles

**The Living cell**

(973) Colour. 21mins.  
The Chemistry of the cell—Part I—The structure of Protein and nucleic acids

Structure of amino acids and methods of elucidating protein structure

## PART II

49

*Part 2—The Function of DNA and RNA in Protein synthesis*

(974) Colour. 16mins.  
Interference microscope pictures of cell division. Structure and function of RNA and DNA

*Biology of Cockroaches*

(575) Colour. 14mins.  
Various organ systems, life history and classification of the cockroach

*The life cycle of Maize*

(98) 10mins.  
The biological study of maize.  
Experimental and diagrammatic sections of the plant

*Biology by enquiry*

(574) 17mins.  
Consists of two sequences.  
In the first instance students are introduced to biological classifications and in the second they investigate in class-room condition

*Genetics and Plant Breeding*

(824) Colour. 17mins.  
Describes Mendel's experiments with peas in which plants of different characteristics were crossed and the ratios in which the various characters appeared observed

*Molecules and Life*

(1037) Colour. 20mins.  
Outlines the achievements of Molecular Biology showing works of various Scientists

*The double Helix*

(1681) Colour. 12mins.  
Shows the work of James Watson, Maurice Wilkins and Francis Crick in determining the structure of DNA

*Root growth and soil fauna*

(149) Colour T. V. 10mins.  
At East malling research station biologists working in an underground laboratory with glass walls study of fruit tree roots

*Climbing trees*

(630) Colour. 12mins.  
Examines the manner in which plants climb. Time lapse techniques are extensively used to illustrate the growth of roots and tubers

*The DNA Story*

(709) Colour. 45mins.  
An historical account of the events and personal relationships surrounding the investigation of James Watson and Francis Crick

*The germination and growth of plants*

(842) Colour. 16mins.  
The film is designed to cover the syllabus for 'o' level in biology illustrating origin and variety of fruits and structure of seeds

*Plants movement*

(1215) Colour. 6mins.

Opens with an explanation of the time-lapse technique in cinematography

*Insects harmful to man*

(930/4063) Colour. 16mins. Shows how the activities of certain groups of insects are dangerous or detrimental to man's health, livestock and growing crops

*Insects helpful to man*

(931/4064) Colour. 18mins. Shows ways in which man benefits from the activities of some insects e.g. honey bee, silkworms etc.

*The human eye*

(894) Colour. 15mins. Man's binocular vision and field of view are contrasted with vision in other animals. Photography, models and animated diagrams are used

*Capital garden*

(4015) Colour. 43mins. The story of Royal Botanical Garden, Edinburgh, from its inception in 1670 as physic garden until the present day

*Amoeba*

(4004) Colour. 17mins. The principal techniques of illumination in microscopy are explained and morphology and behaviour of Amoeba are explained

*The hot blooded Dinosaurs*

(4054) Colour. 50mins. Early experts came to regard Dinosaurs as slow moving sometimes aquatic cold blooded reptile-like creatures. This film oppose this idea

*Insects : Adaptations for survival*

(4061) Colour. 11mins. Illustrates how various species of insects have evolved

**Chemistry**

*Atoms and Molecules*

(531) 15mins. Elementary teachings about atoms and molecules

*Solids, liquids and gases*

(1684) 15mins. Elementary teachings about solids, liquids and gases

*The air we breathe*

(512) 16mins. The nature of earth's atmosphere, its composition and the use of oxygen by animals

*Physics and chemistry of Water*

(1165) Colour. 21mins. Following a demonstration of how hydrogen and oxygen combine to water, the atomic structure of water molecule is shown in terms of its electronic character.



### The British Council Film Library

The film library of the British Council Division, British High Commission, is housed in its office in Bombay.

The address is :

The British Council Library  
British High Commission  
Mittal Tower 'A' Wing  
Nariman Point, Bombay-400 021.

The Library consists of only 16 mm documentary films—both informational and instructional—covering a wide range of scientific, technological, educational and cultural subjects.

Universities and their affiliated colleges, educational institutions recognised by the central or state governments, agencies directly under the central or state governments and industrial concerns in the public sector can become approved borrowers by applying to the Film Library through the British Council Division office in their region.

The films borrowed from the British Council Division are strictly for non-theatrical and non-commercial showing and must not be re-lent by the borrowing institutions. *Admission fees to screenings of these films must on no account be charged.*

These films are not censored and can be shown to invited non-paying audiences only.

The film library does not charge a membership fee but borrowing institutions are responsible for paying the postage charges of sending film parcels by registered parcel post, *both ways*. The Library will recover outward postal charges on films sent to them by regular billing.

Once an institution is enrolled as a regular borrowing member all requests and correspondence relating to films held in Bombay must be sent to Bombay.

Film catalogues are sent to institutions from Bombay after the formalities of enrolment are complete.

It is warned that the membership list is very full and new memberships are being accepted very sparingly, from University departments, few colleges and from public and private undertakings.

Name of the Institution : Films Division, Govt. of India  
Address of the Institution : 15/1, Chowringhee Square,  
Calcutta-700001  
Person to be contacted : Film Publicity Officer or PRO, Films  
Division, at the above mentioned address or at 24,  
Peddar Road, Bombay-400026

### List of films

#### *Wild Life of India*

35/16 mm. 26 mins. Colour.  
Bengali  
The film serves as a guide to the tourists to know about some of the easily accessible wild life sanctuaries of India. Typical flora and fauna in the game sanctuaries are shown

#### *Conserve soil to conserve dam*

16 mm. 16mins. Black and white. Bengali  
It shows briefly how soil conservation is important and how on it depends the life of dams

#### *Fight the floods*

16 mm. 12 mins Black and white. Bengali  
This film shows the devastation caused by floods in the country and highlights the work of the Central Flood Control Board

#### *Efficient use of water*

16 mm. 12 mins. Black and white. Bengali  
A documentary on U.S. Contribution to the overall water development programme in India

#### *Grand old water*

16 mm. 12 mins. Black and white. Bengali  
Stressing the need of water resources, the film shows how a river can be harnessed to peaceful purposes

#### *Tree of wealth*

16 mm. 8 mins. Colour.  
Bengali  
Shows the utility of a tree and its service to the living world

#### *Symphony of seasons*

16 mm. 8 mins. Black and white. Bengali  
Traces the cycle of seasons and its effects on the face of the land in various parts of India

#### *Tomorrow may be too late*

35/16 mm. 10 mins. Colour.  
Bengali  
Many animals are in danger of extinction due to man's ruthless killing. An appeal for preservation of wildlife

#### *Bachiye-Bachiye-Bachiye*

16 mm. 8 mins. Black and white. Bengali

A film stressing the need for conservation of energy

*Young Artisans*

16 mm. 8 mins. Black and white. Bengali  
Facilities available for training young artisans

*Suhani Sadak*

16 mm. 2 mins. Black and white. Bengali  
On clean roads and streets ; how they are necessary

*Food for Nutrition*

16 mm. 12 mins. Black and white. Bengali  
Shows the necessity of balance nutritious food intake

*The Heartless Breed*

16 mm. 9 mins. Black and white. Bengali  
Shows the effects of food and drug adulterations

*Skin in the bin*

16 mm. 6 mins. Black and white. Bengali  
A cartoon film show to keep your city clean and why

*Warning signal*

16 mm. 10 mins. Colour. Bengali  
The film shows how water is being polluted and its effects on the living world

*Two thalis*

16 mm. 4 mins. Black and white. Bengali

The film appeals to people not to waste food, and shows the ultimate effect of the wastage

*Geology in the service of Man*

16 mm. 7 mins. Black and white. Bengali  
Shows the role played by the Geological sciences in the development of the Country

*Unknown Crook*

16 mm. 3 mins. Black and white. Bengali  
The film brings out the tragedies due to drug adulteration and suggests measures to fight this social evil

*Save water*

16 mm. 1 min. Black and white. Bengali  
The film appeals to people not to waste water but save it

*Good Earth*

16 mm. 16 mins. Black and white. Bengali  
The film shows how the land is transformed with bounty crops because of irrigation facilities and modern methods of cultivation

*Petroleum Crisis*

16 mm. 5 mins. Black and white. Bengali  
Emphasises the need to cut petrol consumption in view of the world wide shortage and the increased price of oil

**Terms of hiring and other facilities**

All the films mentioned above are available on loan basis  
Security deposit if any : Nil. Cost of hiring : Nil  
Projector/Projectionist available : Yes  
Cost of hiring at Calcutta : Nil. Outside Calcutta : Nil  
Any other relevant information : All the films mentioned above, are available in the different regional languages of the country. Plenty of other films on this subject also are available for which the PRO of Films Division, may be contacted at the given address



Name of the Firm : Devjani Chaliha & Associates  
Address : P-21, Golf Club Road, Calcutta-700033, Phone No. 46-0230  
Activities : This Firm renders all possible help in Film making and Television programming. At a very reasonable cost they produce Documentary films, Advertising films, TV Commercials and TV News and Programmes, etc. A number of reputed films on Environmental Science and Life Science produced by this Firm (DCA Films) is listed below :

***Delightful Nature***

Colour. English. On the flora of north eastern India

***Pride of Nature***

Colour. English. On the fauna of north eastern India

***Elephant befriended***

Colour. English. On the training of newly captured elephants

***Danger ahead***

Colour. English, Khasi, Garo. On conservation of nature

***The Dombugittim Story***

Colour. English, Garo. On soil conservation

***Biyer cheye boro***

Colour. Bengali. Family Welfare Quickly

***The Dirty hands around us***  
Colour. English. On prevention of adulteration***Ekhoni noy***

Colour. Bengali. On family welfare quickly

***Bisphoron***

Black & white, English. TV Film on population explosion

Producer-in-charge may be contacted for further details.

**PART II**

55

**VIDEO CASSETTES****On Environmental Science and Life Science**

American Centre Library,  
7, Jawaharlal Nehru Road,  
Calcutta-700 013

VTR 551.6 E Environmental series : Landsat, a satellite for all seasons : Pollution Solution—Northern Virginia Educational Television. 1976. 13 mins. Colour

The Landsat satellite for all seasons ; Land for people, Land for Bears. 13 minutes, Colour

The Landsat satellite for all seasons ; The Fractured Look. 13 mins. Colour

Gate to World weather, 28 mins. Colour

301.31 VTR C Century 3 Man in the Environment. Santa Monica, California Pyramid Films for USIA 1976-77. 27 mins. Colour

American Centre Library,  
1, Bidhan Sarani,  
Calcutta-700 073

VTR662 GAS B/C/M/ND Gasohol : Growing some of our own fuel, U.S. Dept. of Agriculture, Motion Picture Div. 1980. 14 mins. Colour

VTR 557.6 M The Global Weather Experiment. A Whole Earth View, U. S. National Oceanic and Atmospheric Administration. 1979. 14 mins. Colour

Video Cassettes on other topics also are available at the American Centre. These Video tapes may be seen through Video Cassettes Player installed at the American Centre Library

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## PART III

### ENVIRONMENTAL EDUCATION

#### **Regulations of M. Phil Course of Calcutta University**

(As adopted by the Calcutta University Council on 7.1.83)

#### **1.00 GENERAL**

**1.01** The M. Phil degree shall be a preliminary research degree which will include course work. The relevant programme shall provide facilities for undertaking research. Emphasis shall be laid on training in research methodology in a subject or in an interdisciplinary field.

**1.02** Research work done for the M. Phil degree may be incorporated in the thesis for the Ph. D. Degree. However, the M. Phil degree is not a prerequisite for admission to the Ph. D. degree programme. A student may register himself direct for the Ph. D. Degree. Candidates shall not, however, be allowed to pursue both the courses simultaneously.

#### **2.00 ADMISSION**

**2.01** Any candidate who has passed the M.A./M.Sc./M.Com. Examination of this University or of any other recognised University may be admitted to the appropriate M. Phil programme by the relevant Faculty Council on the recommendation of the M. Phil Committee concerned provided he has passed the M.A./M.Sc./M.Com. Examination in the subject/field or in an allied subject/field.

**2.02** Every candidate seeking admission into the M. Phil programme shall apply to the Registrar together with a Registration fee (non-refundable) of Rs. 50/- on or before such date as may be notified. Candidates selected for admission shall pay a tuition fee of Rs. 200/-.

#### **3.00 COURSE STRUCTURE**

**3.01** The candidates shall (a) take up four out of a number of Papers on advanced topics and on research methodology, and (b) submit a dissertation or undertake a

## PART III

57

project work. About 50% of the time shall be devoted to course work and seminars and the remaining 50% to dissertation/project work.

3.02 The course shall be so designed that these not only enhance the capacity to take up research but also aid to the students' deeper understanding of the subject/field.

3.03 A candidate shall attend and participate in at least four seminars for the purpose of discussing new results and developments in his chosen subject/field. At least one of such seminars shall be given by the candidates and shall pertain to his dissertation/project work.

3.04 The number of lectures/seminars per course shall be not less than 25 and the same for the whole programme shall be at least 100.

3.05 The duration of the course shall be one academic year. The dissertation may be taken up concurrently and completed within one year, or others with the courses but shall have to be completed within a maximum period of one more year, if necessary. No one shall be allowed to appear at the final Comprehensive Examination till he submits his dissertation/project work.

3.06 Conventional lecturing shall be replaced as far as possible by seminars ensuring the students' active participation. Presentation of papers and group discussion shall also be encouraged. Attendance at less than 75% and/or unsatisfactory performance at the seminars etc. shall disqualify a candidate from further studies. Decision of the M. Phil Committee concerned in this regard shall be final.

3.07 A candidate may be admitted into any of the following M. Phil Programmes :

Economics	Physical Sciences
Political Science	Social Sciences
Philosophy	Environmental Science
History	Biophysics & Molecular Biology
Applied Mathematics	

Provided that the University may introduce new M. Phil programmes or modify, if necessary, the existing programmes subject to provisions of these Regulations. The University also reserved the right to offer or, not to offer, any or all of the M. Phil programmes in any academic year.

#### 4.00 EXAMINATION AND EVALUATION

4.01 Performance of an M. Phil student shall be evaluated on a continuous basis as prescribed by the M. Phil Committee. The total marks allotted to a course, distribution of marks in each course to different components of performance, such as through terms papers, review essays, oral presentation in seminars, viva-voce, etc., shall be spelt out at the beginning of the session by the concerned M. Phil Committee.

4.02 The Scheme of examinations shall be as follows :

(i)	Course work (four papers of two hours each, each carrying 50 marks)	... 200 marks
(ii)	Internal Assessment (based on seminars, review essays, etc.)	... 100 marks
(iii)	Dissertation/Project Work	... 100 marks
(iv)	Final comprehensive/Viva-voce Examination	... 100 marks
<hr/>		<b>TOTAL ... 500 marks</b>

In order to pass, a candidate must obtain 250 marks. Each successful candidate shall be awarded the degree in the form as set out in the Appendix.

Only those candidates who have prosecuted the course of studies for one academic year and submitted the dissertation/project work assigned to him in terms of these regulation, shall be eligible for admission to the final comprehensive/Viva-voce examination. Eligible candidates shall apply in the prescribed form for admission to this examination together with an examination fee of Rs. 200/-.

4.03 A Board of Examiners shall be appointed by the relevant Faculty Council on the recommendation of the M. Phil Committee to assess performance of the candidates at the examination as also to examine the dissertation/Project work. The Board of examiners at a meeting shall make assignments to the examiners.

## PART III

59

## 5.00 ADMINISTRATION OF THE M. PHIL PROGRAMMES

5.01 The M. Phil programme shall be conducted by a University Department or a group of such departments. However, recognised Research Institutes within the jurisdiction of the Calcutta University may collaborate and participate in these programmes with the approval of the relevant Faculty Council.

5.02 The M. Phil programme shall be administered by the M. Phil Committee consisting of the Head(s) of the concerned Department(s), five whole-time teachers of the University and not more than three external experts participating in the M. Phil programme to be nominated by the Vice-Chancellor in consultation with the Dept. Committee, if any. The Vice-Chancellor shall also appoint one of the members as the Programme Co-ordinator who shall act as the Convener of the M. Phil Committee.

5.03 The M. Phil Committee shall—

- (a) recommend to the relevant Faculty Council candidates for admission to the M. Phil Course, and assign them to individual supervisors for guidance of their dissertation or project work ;
- (b) draw up the syllabii and prescribe methods of evalution for the courses, define the limits of the subject and course contents, and modify them, as and when necessary, with the approval of the relevant Faculty Council ;
- (c) make assignments to the teachers and the guides ;
- (d) organise seminars/tutorials etc. ;
- (e) make all arrangements for evaluating the performance of the M. Phil students ;
- (f) recommend names to the Faculty Council for appointment to the Board of Examiners ;
- (g) recommend to the Faculty Council the award or otherwise of the M. Phil degree to the students, after considering the records of their performances, to be kept in the manner prescribed by the Syndicate ; and



(h) perform such other duties in connection with the administration of the M. Phil programme as may be directed by the Faculty Council.

5.04 Teachers and guides for the M. Phil programme shall be invited by the Vice-Chancellor in consultation with the Programme Co-ordinator and the Departmental Committee, if any, from amongst experienced teachers of the University and senior academic staff of recognised research institutes who possess distinguished record of productive research work, to participate in the Programme.

5.05 Ordinarily not more than two M. Phil students shall be assigned to any individual for dissertation/project work and no individual shall ordinarily teach more than two courses in an M. Phil programme.

5.06 Those Regulations shall come into effect from the academic session 1983-84 and replace all the existing regulations for the M. Phil course of the University therewith.

## APPENDIX

### Master of Philosophy

This is to certify that..... obtained the degree of Master of Philosophy in this University in the year....., the subject/field in which he was examined having been .....

SENATE HOUSE,

The.....19.....

Vice-Chancellor



## UNIVERSITY OF CALCUTTA

### Programme in Environmental Science for Research, Training and Degree in Environmental Science (M.Phil)

#### 1. PREAMBLE :

During the last few decades there has been a significant trend of increasing awareness of the problems of scarcity of resources, ecological disturbances and environmental pollution due to explosive population growth, rapid industrialization and uncontrolled use of natural resources which have been going on over the century. These global problems facing the mankind found significant expression in the U. N. Conference on Human Environment in Stockholm in 1972, where an Action Plan was formulated with a series of recommendations for efficient environmental management and sound environmental education and training (U. N. Conference on Human Environment, Recommendations & Actions Plan, Stockholm, 1972). The resulting United Nations Environmental Programme operating since 1974 in Nairobi has focussed on the educational and training aspects of man and environment issues and has recommended various action for "strengthening of environmental education and in particular of post-graduate environmental training" towards efficacious environmental management. (U.N.E.P., The State of Environment Report, 1975-1981. Report on Training Activity, Nairobi, Paris, 1980). The subsequent Workshop on Environmental Education in Solgrade in 1975 and the inter-governmental World conference in Environmental Education held in Tbilist, USSR also put forward specific recommendations of, inter alia, conducting environmental education programme ranging from elementary to post-graduate stage of education and in formal as well as in non-formal sectors. (UNESCO UNEP, Intergovernmental Conference on Environmental Education, Tbilist 1977). Moreover UNESCO, through its various programmes on Ecological Sciences, Hydrological Sciences, Engineering Education, Human Settlements and its Man and Bio-sphere programme has strongly emphasised the need for inter-disciplinary approach in dealing with all kinds of problems of Man and Environment and has advocated "explicit incorporation of environmental dimension in the teaching of Physical Science, Biological Science, Earth Science and even Social Science" (UNESCO, Man & His Environment, 1979). In association with UNEP, it has

sponsored and conducted training programme for engineers and technologists incorporating environmental aspects in Engineering and Physical Sciences education.

At the national level in India, the National Committee on Environmental Planning and Coordination and the Department of Environment/Science and Technology have lately laid such emphasis on inter-disciplinary research, education and training in the area of environmental problems and management. The University Grants Commission has been also advocating inter-disciplinary and integrated approach by pooling together resources, methodologies and expertise in different University departments for tackling manifold problems of Environment and Society. Lately the Planning Commission has been sponsoring research projects on environmental problems of Ganga River taking it as a resource base and a life-supporting system through inter-disciplinary and multi-dimensional approach by inter-institutional efforts in order to solve various ecological problems in Ganga River in an integrated way. The University of Calcutta is very much involved in it through the participation of its Departments of Agriculture, Botany, Geography, Zoology etc.

The Planning Commission has also incorporated the environmental impacts and ecological management in the case of all kinds of field based development projects in its VI Plan documents, and has urged all State Governments and Central Govt. Ministries to adopt ecologically viable development projects in different fields (Govt. of India, VI Plan document, New Delhi).

## 2. PROGRAMME IN ENVIRONMENTAL SCIENCE

It is in this context that the University of Calcutta is initiating an inter-disciplinary Programme in Environmental Science involving the various disciplines in Earth Sciences, Biological Sciences, Physical Sciences etc.

The Programme will have three fold components, such as follows :

- (a) Guiding and coordinating inter-disciplinary researches of environmental concern sponsored by UGC, Planning Commission and other agencies.
- (b) Conducting Seminars, Conferences and Workshops in the area of environmental problems, planning and

management for training of students, scholars, young teaching staff etc.

- (c) Running a M. Phil. degree course in Environmental Science by involving students and teachers in Earth Sciences (Geology, Geography etc.), Biological Sciences (Botany, Agriculture, Physiology, Zoology, Anthropology etc.), Physical Sciences (Physics, Chemistry, Biochemistry, Applied Mathematics etc.).

### 3. M. PHIL. DEGREE IN ENVIRONMENTAL SCIENCE

#### A. Objectives

- (a) To *orient* students of Earth, Biological and Physical Sciences in the proper understanding of the functioning of the Environmental system—physical as well as human and of the major Man and Environment relationship and issues.
- (b) To *acquaint* the students of Earth, Biological and Physical Sciences with the courses and effects of ecological disruption environmental degradation and pollution, deterioration in public health status, etc. due to industrial-urban growth, technological development and mismanagement of environmental resources.
- (c) To *train* students and scholars in the fundamental principles of environmental science in an integrated manner so as to be applicable towards sound environmental management and control, balanced development without minimum injury to its environment, and techno-ecological solution to environmental damages. This course shall integrate various environmental problems and issues in the area of Earth Science (Geology, Geography etc.), Biological Science (Botany, Agriculture, Zoology, Physiology, Anthropology etc.) and Physical Science (Physics, Chemistry, Biochemistry, Applied Mathematics etc.) and equip the students to conduct teaching, research and professional activities of interdisciplinary nature in the area of environmental science.

#### B. Purpose

- (a) The M. Phil degree should be looked upon as a preliminary research degree which will include course

work. It would provide a background for undertaking research and emphasis will be laid on training in research methodology.

- (b) The M. Phil. degree will also provide an opportunity to candidates to proceed to Ph.D., it being understood that the research work done for M. Phil. degree could be incorporated in the thesis for Ph.D. degree.

### UNIVERSITY OF CALCUTTA

#### *M. Phil. course in Environmental Science*

#### Constituent Departments

1. Botany	(Biological Science)
2. Zoology	"
3. Physiology	"
4. Agriculture	"
5. Anthropology	"
6. Life Science	"
7. Geography	(Earth Science)
8. Geology	"
9. Physics	(Physical Science)
10. Chemistry	"
11. Biochemistry	"
12. Applied Mathematics	"

#### Courses for Study and Distribution of Marks

(1) Course Work (Four papers each carrying 50 Marks)	200 Marks
A. Core Topics (Compulsory for all the students coming from different disciplines)	
Course No. 1	50 Marks
Course No. 2	50 Marks
B. Special Topics relevant to each discipline participating in the Programme	
Course No. 3	100 Marks
(2) Internal Assessment—based on Seminars, Reviews Essays, etc.	100 Marks
(3) Dissertation/Project Work	100 Marks
(4) Final comprehensive Viva-Voce Examination	100 Marks
Total	500 Marks

**The List of Calcutta University teachers participating in teaching of M. Phil. course in Environmental Science.**

***Department of Zoology***

1. Prof. Amalesh Chowdhury
2. Dr. N. C. Dutta
3. Dr. Ajit Kumar Sarkar
4. Dr. S. G. Pal
5. Dr. N. B. Chatterjee

***Department of Botany***

1. Prof. S. Mukherjee
2. Dr. R. Purakayasta
3. Dr. R. K. Choudhuri
4. Dr. Prabir Chatterjee
5. Dr. N. Paria

***Department of Physiology***

1. Dr. B. N. Koley
2. Prof. C. Deb
3. Prof. R. N. Sen
4. Dr. S. P. Chatterjee
5. Mrs. Sakuntala Dasgupta
6. Dr. (Mrs.) Pratima Chatterjee

***Faculty of Agriculture***

1. Prof. T. M. Das
2. Prof. S. P. Banerjee
3. Prof. R. N. Basu
4. Dr. S. K. Pal
5. Dr. M. K. Majumdar

***Department of Biochemistry***

1. Prof. J. J. Ghosh
2. Prof. I. B. Chatterjee
3. Dr. A. B. Banerjee
4. Dr. (Mrs.) Manju Mukherjee
5. Dr. Sudip Banerjee
6. Prof. G. C. Chatterjee

***Department of Chemistry***

1. Prof. D. Banerjee
2. Prof. M. Sengupta
3. Prof. P. Bandyopadhyay
4. Dr. A. K. Sen
5. Dr. N. Saha
6. Dr. S. Roy
7. Dr. G. N. Mukherjee

***Department of Geography***

1. Prof. K. G. Bagchi
2. Prof. B. Banerjee

***Department of Anthropology***

1. Prof. R. K. Poddar
2. Dr. A. Thakur
3. Dr. B. Bagchi
4. Dr. Utpal Chowdhuri
5. Dr. Asit Baran Sanyal

1. Prof. D. P. Mukherjee
2. Dr. Asok Ghose
3. Dr. A. R. Banerjee
4. Dr. Tulika Sen
5. Dr. S. K. Sengupta
6. Dr. M. Bhattacharya
7. Dr. Ranjana Ray

Prof. T. M. Das  
Co-ordinator



**M. Phil SYLLABUS ON ENVIRONMENTAL SCIENCE**  
**CORE TOPICS**

**(Compulsory for all the students coming from different disciplines)**

**COURSE NO. 1**

**ECOLOGY, POPULATION AND ENVIRONMENT :  
ISSUES AND PROBLEMS**

**(50 Marks)**

**TOPIC NO.**

- 1.1 Ecological factors and environmental interactions—Air, Water, Soil, Temperature, Light, Oxygen and Plants and Animals.
- 1.2 Principal components of Ecosystem, Ecosystem dynamics, Productivity.
- 1.3 Bio-geochemical cycles.
- 1.4 Eco-energetics—Foodchain, Food web, Ecological pyramids, Energy flow.
- 1.5 Principles of Ecological web, Balance in Ecosystems.
- 1.6 Principles of Strategy of Survival in Nature.
- 1.7 Demography and Ecosystem.
- 1.8 Supporting capacity of plant, soil and water.
- 1.9 Biochemistry of food and nutrition.
- 1.10 Control of population growth—Urban and rural systems and quality of urban and rural life, Socio-economic factors and constraints.

**PART III****67****COURSE NO. 2****RESOURCE CONSERVATION, POLLUTION AND ENVIRONMENTAL MANAGEMENT****(50 marks)****TOPIC NO.**

- 2.1 Global and regional distribution of natural resources—Agricultural, Forest, Mineral and Fossil-fuel.**
- 2.2 Renewable and non-renewable resources vis-a-vis Technological innovation.**
- 2.3 Trend of exploitation of natural resources, Conservation of soil, water and forest, Resources Management and Conservation strategy.**
- 2.4 Global trend of pollution of environment—air, water, soil, sound, heat and radio-active pollutants. Regional pollution from petrochemicals, iron and steel, paper and textile and cement industries.**
- 2.5 Plant responses to air pollution.**
- 2.6 Problems of urban sewage and rural sanitation.**
- 2.7 Impact of agricultural pollution on ecosystem.**
- 2.8 Techniques of controlling environmental pollution including Biological controls.**
- 2.9 Parameters of pollution and Environmental Laws.**
- 2.10 Problems of Environmental Management.**

**M. Phil. COURSE IN ENVIRONMENTAL SCIENCE****COURSE NO. 3****Special Topic : Botany**

(100 Marks)

**Environmental complex**

Modes of action of environmental factors, multiplicity of factors, heterogeneity of environment, dynamic nature of environment, variability of plant requirements, factor interaction, optimal and limiting factors ; extrapolation from controlled environment to the field-phytometer method.

**Plant and its environment**

Germination, vegetative growth, flowering and fruiting of plants and their relation to environmental conditions.

**Ecosystem Dynamics**

Energy flow, mineral cycling, cycling of gases, interactions between organisms, vegetational change and stability, balance in the ecosystem.

**Terrestrial ecosystem types**

Tropical rainforest, Tropical savanna, Warm deserts, Cold deserts, Montane coniferous forests, Boreal coniferous forest, Alpine tundras, Arctic tundra.

**The Impact of Man on Environment**

Impact of pre-agricultural man, agricultural man, industrial man on environment, applied ecology of the individual, populations and ecosystems, natural, modified and synthetic ecosystems, pollution and conservation of nature.

**Reference Books**

1. Billings, W. D., 1964. *Plants and the Ecosystem*, Macmillan & Co., London.
2. Daubenmire, R. F., 1974. *Plants and Environment*. 3rd ed. John Wiley & Sons, New York.

## PART III

69

3. Kellman, Martin C., 1980. *Plant Geography*. 2nd edn. Methuen & Co., London.
4. Wratten, Stephen D. and Gary L. A. Fry, 1980. *Field and Laboratory Exercises in Ecology*. Edward Arnold, London.



## COURSE NO. 3

**Special Topic : Zoology****ENVIRONMENT AND ANIMAL WORLD**

(100 Marks)

**Distribution of animals in space and time (General Idea)**

Distribution of animals in forests, mountains, plains, deserts, marine and estuarine biomes in India.

Hooghly-Matlah estuarine complex ; Mangrove ecosystem ; horizontal and vertical distribution of littoral fauna in Hooghly-Matlah estuarine complex ; population fluctuation as related to seasonal and diurnal environmental variations ; Biological clocks in marine and estuarine benthic fauna.

Structure and function of biotic community ; Species diversity in communities ; Principles pertaining to limiting factors ; Behaviour as phenomenon of animal populations, Animal societies and territoriality ; Demography and health ; Zoonotic potentialities of malaria, filaria and leishmaniosis ; Control of diseases borne by animals (slugs, snails and insects etc.).

**Reference Books**

1. J. M. Edington & M. Ann Edington, *Ecology and Environmental Planning*, 1977.
2. Allen H. Penton and William E. Werner, Jr. *Field Biology and Ecology*. T.M.H. Edition, 1976.
3. Kendaig, *Animal Ecology*, 1974. E. E. E. series (Indian edition), Prentice Hall Publication.



4. R. G. Bond and C. P. Straub (Ed.). Hand Book of Environmental Control. 4 Vols. (1973-1974), CRC Press, Cleveland, Ohio.

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COURSE NO. 3

**Special Topic : Physiology**

**ENVIRONMENTAL PHYSIOLOGY AND HYGIENE**

(100 Marks)

Application of Science, Technology and Art to Control, Conservation and Improvement of environmental quality.

Physical, chemical, physiological and psychophysiological and social aspects of the environment; corporal and mental responses to changes in environment, Physical nature and biological behaviour of air, water, soil, food and waste affecting man's occupational agricultural, industrial, official, domestic, recreational, social and cultural activities.

**(A) PHYSICAL ASPECTS OF ENVIRONMENT**

**(i) Thermal Environment**

Effects of hot and cold conditions (Physical factors : air temperature, humidity, solar and other thermal radiations, air movement—methods of measurements) ; Ventilation of buildings ; fresh air requirements ; use of deodourants in public places. Effects of different types of pleasant and disagreeable odoriferous substances.

**(ii) Visual, Acoustic and Olfactory environment**

Methods of measurement ; Illumination levels ; Lighting standards ; Role of different colours ;

Glare and discomfort ; Flicker Phenomena—critical fusion frequency ; eye movements (Voluntary activities and spontaneous blinking) oculography ; methods of measurements of levels of noise and vibration ; principle of hearing loss and

## PART III

71

auditory damage with industrial and other noises, effects of music. Measurement of threshold of smell—olfactometer ; Effects of ionizing radiations.

**(B) PHYSIOLOGICAL AND PSYCHOPHYSIOLOGICAL ASPECTS OF ENVIRONMENTS**

Human sensitivity to heat, light, sound, vibration, smell perceptual, effects of heat (dry and wet) and cold exposures—steel mills, cold storage etc. ; heat and cold stress indices ; Effects of noise and vibration—their interactions ; limits of tolerance ; environmental factors limiting work output ; heat disorders—methods of protection, thermal barrier—protective clothing and suits ; acclimatization ; principles of construction and use of climatic (psychrometric) and sound-proof and illumination chambers. Methods of assessment of heat balance—(thermal exchanges between men at work and environment) ; body temperature regulation during work ; water balance ; rectal, oral, aural and skin temperatures ; heat storage.

**(C) CHEMICAL ASPECTS OF ENVIRONMENT**

Effects of industrial hazards e.g., dusts, smokes, fumes (Pneumoconiosis, byssinosis, asbestosis etc.) ; harmful effects of bad environment ; soil, air and water and food pollution, reduction of environmental load ; Methodological approaches to deriving environmental health standards, allowable limits (MAC=maximum allowable concentrations) TLV (Threshold Limit Values) and modified TLVs of occupational exposure to potentially toxic substances conveyed by air ; Air borne contaminants ; methods of measurements and concepts ; toxicity of the penetration of substances at oral, inhalatory and cutaneous routes, Dose-response curves ; Quantification of doses depending on different factors such as body weight, surface area, body composition, circadian rhythm, adaptation ; cumulation potentials, synergism ; the problem of threshold concentrations, in workers entrusted with the fulfilment of important tasks ; Effects of ionizing and non-ionizing radiations ; short-term and long-term effects ; short lasting allergies ; long lasting-carcinogenics and teratogenics, mutagenicity.

Biological monitoring ; Estimations of effects on blood, cardiovascular, respiratory, gastro-intestinal (liver), urogenital, nervous and other systems, Environmental problems and cost-benefit analysis.

**(D) ALTITUDE AND SPACE**

Effects of high and low barometric pressures on work capacity ; physiological adaptation of altitude dwellers and highlanders in comparison to sea-level dwellers ; Physiology of mountaineering. Effects of different types of acceleration and deceleration of man in motion (in air craft) ; human tolerance and performance. Effects of positive, negative and zero G-forces. Human centrifuge ; weightlessness and performance. Ergonomics of space flights. Disorientation ; gravitation cues ; visual illusion ; oculogyral illusion ; fascination ; isolation.

**(E) ACQUATIC ENVIRONMENT**

Physiology of diving in man and other animals—surface and underwater swimming and deep-sea diving ; physiological problems in pressurization and decompression, protection from decompression ; underwater construction work in sealed caissons ; Safety aspects ; problems of speech intelligibility and communication with the use of helium in submarine ; effects of long-term living in submarines ; phenomena of sensory deprivation ; design of naval equipment clothing etc. for use of seamen ; simulation experiments ; capabilities and nutrition of seamen and divers ; Use of marine resources.

**(F) SOCIAL ENVIRONMENT**

Living with animals including man ; Interactions between man and animals ; man and man ; Zoonetic diseases such as brucellosis, anthrax, leptospirosis, tetanus, bovine tuberculosis, ancylostomiasis etc., problems of overpopulation, congestion and unhygienic conditions.

## PART III

73

## COURSE NO. 3

**Special Topic : Agriculture**

## ENVIRONMENTAL PHYSIOLOGY OF CROP PLANTS

(100 Marks)

*Physiological Ecology*

1. Light
2. Radiation
3. Temperature
4. Moisture
5. Pollution
6. Physiology of Environmental Stresses

*Environment and Food Production*

1. Recent history of agricultural production
2. Food production in relation to solar and subsidised energy
3. Nature and area of land under cultivation
4. Land fertility and crop yield
5. Food from the sea and other new sources
6. Impact of forest on food production
7. Reduction of food losses through management of environment

*Crop Environment and Heredity*

1. Mutation, Polyploidy and Evolution
2. Crop performance and yield—environmental constraints breeding for improvement
3. Adaptability, resistance and productivity—genetic improvement ; direction and techniques

**Reference Books**

1. A. C. Leopold, 1964, Plant Growth and Development, Tata McGraw Hill, Bombay, Calcutta
2. H. Mussell and R. C. Staples, 1979, Stress Physiology in Crop Plants, Wiley Inter. Science, New York



3. Paul, R. Ehrlich and Anne H. Ehrlich—Population, Resources, Environment, Freeman, Sanfrancisco.
4. R. W. Allard—Principles of Plant Breeding



### COURSE NO. 3

#### **Special Topic : Geography**

(100 Marks)

**Concept of Geographical Environment**

**Physical Environment ; Human Environment ; Biotic Environment ;**

**Cultural Environment—Rural and Urban.**

**Major Geographical Zones of the Earth : Environmental Factors shaping major Geographical Zones ;**

**Physico-Chemical processes associated with major Geographical zones.**

**Anthropogenic Landscape : Man induced Geomorphic Processes :**

**Man and Ecosystem ; Physical components ; Energy Flow and Energy Balance in Bioshpere ; Soil-Water Balance ; Material cycle in Eco-systems ; Man's impact on Terrestrial and Marine Eco-system.**

***Man and Earth Resources :***

**Major kinds of earth resources ; Forest, Soil, Agricultural land, Minerals, Fuels, Water bodies ; Population growth and food demand ; Problems and Prospects of Mineral and Fuel Resources ; Impact of Urbanization and Industrialization ; Water use and environmental problems ; Natural environment and Recreational needs ; Urban development ; Industrial growth and Quality of air and water.**

## PART III

75

*Cultural components in Man and Environment relationship :*

Man, Technology, and Environment, Exploration, utilization and conservation of renewable and non-renewable resources ; Problems of material balance ; Environmental Management ; Environmental Hazard and Perception ; Geomorphological investigation, ecological mapping and Environmental planning ; Case studies.

**Reference Books**

1. M. I. Budyko, Global Ecology, Progress Publishers, Moscow, 1980
2. A. N. Strahler, Environmental Geoscience, John Wiley, New York, 1973
3. A. H. Strahler & A. N. Strahler, Geography and Man Environment, John Wiley, New York, 1977
4. P. R. Ehrlich, A. H. Ehrlich & J. P. Holdren, Human Ecology, Freeman, San Francisco, 1973

**COURSE NO. 3****Special Topic : Environmental Geology**

(100 Marks)

***Land Use and Resources***

Definition and status of geological components of ecosystem ; solid earth and hydrologic cycle ; land and water resources ; geological phenomena and processes, and their response to environmental changes and impact.

Land use and resources ; psysiographic approach to land use planning for agricultural development ; geological factors and controls for urban and industrial development ; concentration of habitat around earth's resource bases, availability and proximity of ancillary resources.

Responses and hazards due to environmental modifications ; influence of biota on land mass ; effects of cultural practices on land forms ; types of erosion and degradation due to urbanisation ; extraction of solid non-renewable earth resources and mining spoils ; pollution of other environmental components ; conservation of resources.

#### *Water regime*

Classification of various components of water regime as related to hydrologic cycle : (a) surface water including, oceans, seas, rivers, springs, lakes, estuaries, snowlines, glaciers and ice caps, (b) groundwater.

Water resources and uses for various environmental and cultural needs ; renewable components and limits of use of surface and ground water resources involving quality and quantity ; modes of harnessing, routing, recycling and conservation of surface water and ground water reserves ; special techniques and problems of artificial ground water recharge and augmentation of snow-melt for deficient regions ; nuclear hydrological techniques ; conjunctive use of surface water and ground water.

Demand-response model of hydrologic and hydrogeologic systems and impact of environment ; hazards due to water use and hydrologic imbalances in catchment areas ; fluvial channels and ground water storage ; soil erosion, floods, deterioration of estuaries ; irreversible disturbance of water balance of basins ; subsidence due to overdrawal of ground water.

#### *Special Environmental Problems*

Problems of areas with uncontrolled elements ; seismic zones and remedial practices ; arid zones and ameliorative practices ; coastal areas including littoral-tidal zones with beach-erosion and sea-water intrusion into coastal aquifers ; protective or corrective and balanced practices ; problems of drought-prone areas and concept of inter-basin transfer of water resources ; disposal of nuclear wastes.

Examples and case histories from different parts of the world and India. Need for conservation and optimum use of natural earth resources ; need for laws and regulations for conserving and protecting various components of geologic environment.



## PART III

77

### Reference Books

1. P. T. Flawn—Environmental Geology
2. Frederick Betz ed.—Environmental Geology
3. Ven Te Chow—Handbook of Applied Hydrology

### Journals

1. Springer verlag—Environmental Geology
2. Elsevier Publishing House—Environmental Preservation

## COURSE NO. 3

### Special Topic : Physics

(100 Marks)

#### *Physics of Air Pollution*

Properties of the earth's atmosphere : composition, temperature profile, different layers ; the troposphere, stratosphere, mesosphere and ionosphere.

Particle size and its measurement ; different size distribution of tropospheric aerosols ; sedimentation methods in atmosphere and terminal velocity ; light absorption scattering by particles suspended in the atmosphere, adsorption and catalysis of gases by tropospheric aerosols.

Nature of pollutants : Oxides of sulphur & nitrogen hydrocarbons and particulate matter. Photochemical smog. Release of radioactive material to the atmosphere. Elements of photochemical reaction.

Effect of atmospheric smoke and contaminants on human and plant health ; surfaces of buildings and statues, metallic structure, clothes and books.

#### *Physics of Water Pollution*

Physical properties of pollutants in water pollution ; Heavy Metals in water pollution ; Techniques and instrumentation for identifying and studying the water pollutants.

*Radioactive Waste Disposal*

Fission process and elementary theory of nuclear reactors ; Instrumentation for nuclear measurements ; processing and storage of radioactive wastes like fission products in sealed containers, air-cooled vaults and placement in geological formations.

Effect of radiation on human body ; Genetic changes ; shielding and monitoring of radiation.

**Reference Book**

1. A. C. Stern (Ed.), Air Pollution, A. P., New York, 1968.

**COURSE NO. 3****Special Topic : Chemistry****CHEMISTRY, MAN AND SOCIETY**

(100 Marks)

**1. BIO-INORGANIC CHEMISTRY**

The elements of life. Trace element components of an ideal diet. The roles of inorganic species *in vivo*—abundant elements, trace and ultra-trace elements. Enzymes and Co-enzymes, Cofactors, Metalloproteins and Metallo-enzymes, and metal ion activated enzymes. Biological function of Fe, Cu, Zn, Co, Mn, Ni, Cr, V, Mo, Si, Sn, Se, F, Cl, Br, I. Principles of complex formation and its significance in biological systems. Metal poisoning Metal detoxification. Metals in drugs and in chemotherapy. (*Instructor : Dr. N. Saha*).

**2. ENVIRONMENTAL POLLUTION AND CHEMISTRY****(i) *Toxic substances in Man's environment***

Corrosive, metabolic, neurotoxic, mutagenic and carcinogenic poisons. Detoxification in nature and in human body.

## PART III

79

(ii) *Air pollution*

Chemistry of air. Composition of the atmosphere (the troposphere).  $O_2$ - $CO_2$  natural cycle. Particulate and gaseous pollutants in the air and their sources. Smog, preventive measures to combat air pollution.

(iii) *Water-pollution*

Chemistry of water and its uses. The natural water cycle. Organic and inorganic pollutants in water. Dissolved and suspended matter. Biochemical oxygen demand (BOD). Pollution by sewage, industrial effluents, discharges from metal processing and atomic power plants. Effects of fertilizers, detergents, pesticides, heavy metals, Fluoride, nitrate, etc. Hardness of water. Preventive measures for water pollution. Sewage treatment, water purification processes for domestic and industrial uses. Fresh water from the sea.  
*(Instructor : (i)-(iii) Prof. D. Banerjee, Dr. D. N. Mukherjee)*

(iv) *Corrosion Chemistry*

Physico-chemical basis of redox processes. Electrochemical theory of corrosion. Corrosion preventive measures—Cathodic protection, protective coatings including metal plating (thermal and electrochemical), and alloying. *(Instructor : Prof. M. Sengupta)*.

## 3. CONSUMER CHEMISTRY

(i) *Food Chemistry*

Food ingredients and their sources. Chemistry of cooking. Food additives for colour, taste and flavour. Food preservatives. Diet Pills. *(Instructor : Dr. S. Ray)*.

(ii) *Medicines*

Pain killers, Antacids, antiseptics and disinfectants. Antibiotics. Allergens and antihistamines. Birth control pills. Drugs in combination. Use and misuse of drugs. *(Instructor : Dr. A. K. Sen)*

(iii) *Cleaning Agents*

Soaps, synthetic detergents and cleaning agents. Bleaching agents and optical brightners. Organic solvent cleansers. Stain removers.

(iv) *Beauty Aids*

Cosmetics. Depilatories. Hair colouring and bleaching. Hair sprays. Deodorants. Perfumes. Face powder. Lipstick. Nail polish. Eye makeup. Creams. Lotions.

(v) *Fuels, Lubricants and Greases*

Solid, liquid and gaseous fuels. Gasoline and additives, antiknock agents. Lubricants and greases. Antifreeze. (*Instructor : Dr. S. Ray*)

(vi) *Paints and Varnish*

Basic components of paints. Oil-based paints. Water-based paints. (*Instructor : Dr. S. Ray*)

(vii) *Chemistry of Photography*

Black and white photography. Photochemistry of silver salts. Spectral sensitivity. Chemistry of development and fixing. Toning. Colour photography. Polaroid film.

(viii) *Alternative sources of energy*

Nuclear energy. Trapping and utilization of solar energy. Photochemical splitting of water for generation of hydrogen as a fuel. Advantages of hydrogen as a fuel. (*Instructor : (vii) & (viii) Prof. D. Banerjea*)

## 4. PRINCIPLES OF TRACE ANALYSIS

Applications of physico-chemical principles and techniques for the identification, estimation of trace elements and trace constituents in man's environment, in food and in living systems. Principles of chromatography (including GLC), ion-exchanges, solvent extraction, flame photometry, colorimetry, atomic absorption spectroscopy, polarography and other electrochemical techniques, and radiochemical methods. (*Instructor : Dr. P. Bandyopadhyay*)

## PART III

81

## COURSE NO. 3

## Special Topic : Biochemistry

(100 Marks)

(a) *Aspects of Atmospheric Chemistry*

Urban Air quality ; stratosphere composition ; migration and fate of atmospheric trace substances ; chemical aspects of climatic change.

(b) *Major Pollutants of Air*

Types, sources, formation, control and removal.

(a) *Major Pollutants of Water*

Types, sources, contamination, control and removal.

(b) *Organic Waste Management and Bioconversion*

Application of Biochemistry and Microbiology.

(c) *Pesticides & Insecticides, Herbicides*

Types, Mode of action, Biodegradation, Bioaccumulation and Toxicokinetics.

*General Pollutants and their bio-toxic effects*

- (a) Partition co-efficient and water solubility in Environmental Chemistry.
- (b) Bio-accumulation, metabolism activation and inactivation of chemical pollutants within living system.
- (c) Microsomal drug detoxification.
- (d) Polycyclic hydrocarbons and carcinogenesis.
- (e) Mutagenesis.
- (f) Reproductive toxicology.
- (g) Behavioral toxicology.

**Reference Books**

1. The Biochemistry of Pollution (Studies in Biology series 123) JH Ottaway (pp 60) Edward Arnold London (1980)
2. Environmental Chemistry Air & Water Pollution by H. Stephen Stoker & Spencer L. Seager. Scott Foresman & Co. Gleenvview, London
3. Introduction to Environmental Toxicology F.E. Guthrie & J.I. Perry Blackwell 484 p. (1975).
4. Detoxification Mechanism R.T. Williams. Arnold
5. Pathways of Pollutants in the atmosphere. Royal Society London (1979).
6. Air pollutants Chemistry Butter J.D. Acad. Press (1979)

**COURSE NO. 3****Special Topic : Applied Mathematics****ENVIRONMENTAL FLUID DYNAMICS**

(100 Marks)

**Basic thermodynamics of the Atmosphere and Oceans,****Basic equations of geophysical fluid dynamics ; Wave motions ; Shallow water theory ; Rossby waves ; B-plane. Energy and Entropy.****Dynamics of Ocean :****Theory of ocean currents ; potential vorticity ; turbulent energy ; boundary conditions ; Eskman layers ; Geostrophic motion.****Models of wind-driven ocean circulation ; Homogeneous model ; Two and three-dimensional models of ocean currents.****Quasi-geostrophic motion of a stratified fluid on a sphere.**



## PART III

83

Instability theory. Baroclinic instability Eady's, Charney's and Phillips' models. Barotropic instability.

Ageostrophic motions, Continental shelf waves, Equatorial waves.

Atmospheric Turbulence and Diffusion.

Cyclones ; Anticyclones ; Theory of Monsoons.

Meteorology of Air Pollution.

### Reference Books

1. J. Pedlosky, 1979—Geophysical Fluid Dynamics, Springer-Verlag, New York—Berlin-Heidelberg.
  2. V. M. Kamenkovich, 1977—Fundamentals of Ocean Dynamics, Elsevier Scientific Publ. Co., Amsterdam-Oxford-New York (translated by R. Radok).
  3. G. T. Csanady, 1973—Turbulent Diffusion in the Environment (Paper Back edn.), D. Reidel Publishing Co., Dordrecht-Holland, Boston-USA 1973.
  4. G. T. Haltiner and F. W. Martin, 1957—Dynamical and Physical Meteorology, McGraw Hill & Co., New York, Toronto, London.
  5. B. M. MacCormac, Ed. 1971, Introduction to the Scientific Study of Atmospheric Pollution, D. Reidel Publishing Co., Dordrecht, Holland.
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**Regulation and Syllabus of the M. Phil Course in  
Life Science. The University of Calcutta**

Candidates who have passed the Master of Science Examination in Botany, Zoology, Agriculture, Life Science, Physiology, Biochemistry, Anthropology with specialisation in Physical Anthropology and Physics with specialisation in Biophysics may be admitted to the M. Phil Course in Life Science.

**Syllabus of the M. Phil Course in Life Science****COURSE NO. 1****Core Topics**

*Compulsory for all students coming from different disciplines*

**ENVIRONMENTAL BIOLOGY****(50 Marks)**

1. Ecological factors and factorial interaction—water, soil, temperature, light, fire, oxygen and biotic factors. Adaptational physiology.
2. Concepts and dynamics of ecosystem, biogeochemical cycles. Ecoenergetics. Principles and strategy of survival in nature.
3. Productivity—primary and secondary aspects, man's use of productivity. Concept of systems analysis in ecology.
4. Brief outline of radio-ecology. Air, water, soil, light and sound pollutants and their control.
5. Conservation and resource management—natural resources in general, mineral resources, agriculture, forestry, wild life management, agriculture and land-use.
6. Human ecological aspects—variation and adaptation.

## PART III

85

## COURSE NO. 2

## TOOLS &amp; TECHNIQUES IN LIFE SCIENCE

(50 Marks)

*(Any six to be chosen from the following items)*

1. Theory and practice of tissue culture.
2. Bioassays.
3. Chromatography including GLC.
4. Microscopy and photomicrography.
5. Theory and practice of radio-biological methods.
6. Manometry.
7. Different types of centrifugation.
8. Electrophoresis.
9. Photometry.
10. Soil and water analysis.
11. Biochemical analysis—amino acids, carbohydrates, enzymes, etc.
12. Serogenetics.
13. Biometrical analysis.
14. Growth analysis.
- Air sample analysis by GLC, AAS & IR.

## COURSE NO. 3

## Special Topic

*(For students coming from Biochemistry and Biophysics sections)*

## Biological Sciences

## CELL BIOLOGY AND GENETICS

(50 marks)

1. Gene expression and interaction, quantitative inheritance.
2. Chromosomes—euchromatin and heterochromatin, special types of chromosome.
3. Cellular and molecular basis of evolution.
4. Cell fusion and somatic hybridisation.
5. Extrachromosomal inheritance in eukaryotic system.
6. Applied human genetics.
7. Population genetics.
8. Practical applications of breeding principles with special emphasis on improvement of crops and farm animals.

86

**SPECTRUM  
PHYSIOLOGY  
(50 Marks)**

1. Physiology of growth and reproduction—plants, animals and man, hormones, pheromones, photoperiodism and vernalisation.
2. Ageing and senescence.
3. Biological rhythms and its significance.
4. Principles of ergonomics and biodynamics of human body.
5. Stress physiology.

**COURSE NO. 3A**

**Special Topic**

*(For students coming from Botany, Zoology,  
Agriculture etc., Sections)*

**Biochemical and Biophysical sciences**

**MACROMOLECULES AND BIOLOGICAL MEMBRANES**

**(50 Marks)**

1. Structure and functions of nucleic acids and proteins, protein isolations and purification, homogeneity determination. Methods of determination of molecular weights of macromolecules. Physico-chemical techniques for studying protein structure. Mechanisms of hormone and enzyme action.
2. Structure and functions of lipids and phospholipids. Membrane ultrastructure—molecular organisation in biological membranes. Role of lipids and proteins in membrane structure. Physiochemical probes in membrane ultrastructure. Membrane functions—specific transport mechanisms.

**BIOPHYSICS, ERGONOMICS AND STRESS PHYSIOLOGY**

**(50 Marks)**

1. Equilibrium and thermodynamics in biochemical transformations.
2. Molecular biophysics of muscle action, electrical properties of nerve cell membrane, quantum nature and biochemistry of vision.
3. Principles of ergonomics and biodynamics of human body.
4. Stress physiology.



## PART IV

### **Books and Journals on Environmental Science and Life Science available at Departmental Libraries of Calcutta University, Institutes and various Organizations at Calcutta\***

*Life Science Centre, Calcutta University,*

35, Ballygunge Circular Road, Calcutta-700019

Phone : 47-3681

- 610 Arditte, J. and Dann, A. Experimental Plant Physiology, Holt, Rineheart and Winston Inc., New York, 1968
- 614 Rao, K. L. India's Water Wealth, Orient Longman, Calcutta, 1975
- 616 Turk, A. and Witten, J. T. Ecology, Pollution, Environment. W. B. Saunders Company, Philadelphia, London, 1972
- 617 Garvey, Gerald. Energy, Ecology, Economy. Macmillan, London, 1972
- 620 Mansfield, T. A. Effects of Air Pollution on Plants. Cambridge University Press. London, 1976
- 621 Agarwala, S. N. India's Population Problems. Tata Mc. Graw-Hill, New Delhi, 1977
- 624 Moore, Leonard. Encyclopedia of Nature, Hamlyn, London-N. Y., 1973
- 640 Southwick, C. M. Ecology and Quality of Environment. D. Van. N & S Co., N. Y., 1976
- 641 Ehrlich, P. R. Human Ecology Problems and Solutions. W. H. Freeman and Company, San Francisco, 1973
- 655 Das, T. M. Prithibi Ki Sudhu Manuser Janya ? Jonaki Publication, Calcutta, 1979

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\* It is by no means a complete list, other books on these subjects are also available in the libraries.



- 657 Etherington, J. R. Environmental and Plant Ecology.  
Wiley, New York, London, 1975
- 661 Lowenberg, Mirian. E. Food and man.  
Wiley, New York, London, 1970
- 668 Agarwala, S. N. Population.  
National Book Trust, India, 1967
- 680 Dombois, Mueller, etc.  
Methods of Vegetation Ecology,  
Wiley, New York, London, 1974
- 681 Hocker Jr., W. Harold.  
Introduction to Forest Biology.  
Wiley, New York, 1979
- 682 Hussell, H. and Staples, R. C.  
Stress Physiology in Crop Plants.  
Wiley, New York, London, 1979
- 683 Colinvaux, Paul A. Introduction to Ecology.  
Wiley, New York, 1973
- 686 Kane and Strentiein. Life Science Physics.  
Wiley, New York, 1978
- 692 Odum, Eugene, P. Ecology. Oxford & IBH,  
New Delhi, 1978
- 693 Canuell, M. G. R. & Last F. T.  
Tree Physiology and Field Improvement.  
Academic Press, London, 1976
- 694 Bekele, N. etc. FAO Studies in Food and Population.  
Oxford & FAO, 1976
- 696 Carrncross, J. An approach to Food/  
Population Planning. Oxford & FAO, 1977
- 697 Brown, A. W. A. Ecology of Pesticides.  
W. E. B. S., 1978
- 725 de Blij, H. J. The Earth. John Wiley & Sons, Inc.,  
New York, 1980
- 726 Fellows Donald, Keith. Our Environment.  
John Wiley & Sons, New York, 1980.



## PART IV

89

- 727 Strahler, A. N. and Strahler, A. M.  
Modern Physical Geography.  
John Wiley & Sons, South Barbara, 1978
- 728 Strahler, A. M. and Strahler, A. N.  
Geography and Man's Environment.  
John Wiley & Sons, New York, 1977
- 729 de Blij, H. J.  
Human Geography Culture Society and Space.  
John Wiley & Sons, New York, 1977
- 730 Tuve, G. L. Energy, Environment, Populations and Food.  
John Wiley & Sons, New York, 1976
- 731 Koromondy, E. J. Concepts of Ecology.  
Prentice Hall of India, New Delhi, 1978
- 732 Dasmann, R. F. and Freeman M.  
Ecological Principle for Economic Development.  
John Wiley & Sons, London, 1973
- 734 1980 Year Book of Science and Future.  
Encyclopedia Britanica Inc., London, 1979
- 735 1981 Year Book of Science and Future.  
Encyclopedia Britanica Inc. 1980
- 740 Ehrlich, P. R. and Ehrlich, A.  
Population, Resources, Environment,  
W. H. Freeman & Company,  
San Francisco, 1972
- 756 Kendligh, C. S. Ecology with special references to  
animals and man,  
Prentice Hall of India, New Delhi, 1980
- 757 Patel, B. Management of Environment,  
Wiley Eastern Limited, India, 1980
- 758 Winten, E. J. Water soil and the plant,  
Macmillan, London, 1978
- 773 Rao, S.W.V.B. Bacterial Fertilizers. I.C.A.R., 1981
- 774 Torrie, A. Illustrated Glossary of Environmental and  
Ecological Terms.  
Heinemann Educational Books, 1979



- 775 Ricklets, E. R. *The Economy of Nature.*  
Chiron Press, Oregon, 1976
- 777 Marvels and Mysteries of the World around us,  
Reader's Digest Association, Inc., New York, 1977
- 778 Macqueen, Jeen and Mares T. *The Living World.*  
Prentice Hall of India, 1981
- 759 Melvyn Howe, G. and Loraine, J. A.  
Environmental Medicine,  
William Heinemann Medical Books, London Ltd., 1980
- 760 Krebs, C. J. *Ecology. The Experimental Analysis of  
distribution and abundance,*  
Harper and Row, New York, 1978
- 761 Forey, P. L. *The Evolving Biosphere.*  
Cambridge University Press, 1981
- 762 Lockwood, A. P. M.  
Effects of Pollutants on aquatic organisms,  
Cambridge University Press, London, 1976
- 769 Coombs, J. and Hall, D. O.,  
Techniques in Bioproduction and Photosynthesis,  
Pergamon Press, 1982
- 779 Odum, E. P. *Fundamentals of Ecology.*  
W. B. Saunders, N. Y., 1971
- 780 Andrews, W. A. *Environmental Pollution.*  
Prentice Hall, New Jersey, 1972
- 781 Fitter, A. H. and Hay, R. K. M.  
Environmental Physiology of Plants,  
Academic Press, 1981
- 782 Adamson, R. G. *Pollution and ecological approach.*  
Bell Haven House Limited, 1979
- 793 Das, T. M. *Amar Gharer Ase-Pase,*  
Rupa, Calcutta, 1976

**Journal**

Nature—Macmillan Journals Ltd. (By Air Mail)



## PART IV

91

*College of Agriculture, Calcutta University*

35, Ballygunge Circular Road, Calcutta-700019

Phone : 47-3681

631.4 Hudson, Norman. Soil Conservation,  
B.T. Batsford, 1971

628.16 American Water Works Association, Water treatment  
plant design, prepared by ASE, AWWA & CSSE  
N.Y. AWWA, 1971

628.16 James, A. & Evison, L. eds.  
Biological indicators of water quality.  
New York, John Wiley, 1979

628.1684 Hopson, P. N. and Roberston, A. M.  
Waste Treatment in Agriculture,  
London : Applied Science Publishers, 1977

628.5 Loehr, Raymond C. Agricultural Waste Management,  
Problem, processes and approaches,  
New York, Academic Press, 1974

628.5 Loehr, Raymond C. Pollution Control for Agriculture,  
New York, Academic Press, 1974

628.5 Toribera T.Y.S and ors, eds.  
Environmental pollutant, detection and measurement,  
New York, Plennir Press, 1978

581.5 Ashby Maurice. Introduction to Plant Ecology.

581.5 Curtis J. J. Plant Ecology work book.  
Veued Mince, Burges Publication, 1959

581.5 Gates, F. C. Field manual of Plant ecology.  
N. J. Mc Craw-Hill, 1949

581.5 Greig, Smith P. Quantitative plant ecology.  
Land, Butle, Worths, Publication, 1957

581.5 Hudson, J. P. ed. Control of the plant environment.  
Land Butterworths scientific publication, 1957

581.5 Kormondy, E. P. Concepts of ecology, 1971



92

## SPECTRUM

581.5 Krebs, C. J. Ecology : The experimental analysis of distribution and abundance.  
New York, Harper & Row, 1972

581.5 Leach, W. Plant ecology. Mathnan etc. 1956

581.5 Levitt, J.  
Responses of plants to environmental stresses,  
New York, Academic Press, 1972

581.5 Mani, M. S.  
Ecology and phytogeography of high altitude plants of the North West Himalaya, introduction to high altitude botany. New Delhi, Oxford, 1978

581.5 Shukla, R. S. and Chandal P. S.  
Plant ecology, 3rd ed. New Delhi, S. Chand, 1977

581.5222 Etherington, John R.  
Environment and plant ecology  
New Delhi, Wiley—Eastern, 1976

581.5222 Kluge, H. W. Ecological Crop geography.  
New York, Macmillans, 1942

### Journals

Indian Journal of Plant Physiology, Indian Association of Plant Physiology, Divn. of Pl. Physiology, IARI, New Delhi-12

Indian Biologist,  
Indian Association of Biological Sciences

Indian Agriculturist

Indian Journal of Soil Science



*Department of Anthropology, Calcutta University*  
35, Ballygunge Circular Road, Calcutta-700019

Phone : 47-3681

572 Honingman, J. J. (ed).  
Hand book of Social and Cultural Anthropology,  
Rand McNally, Chicago, 1973



## PART IV

93

- 572 Kroelser, A. L. (ed). Anthropology Today, University of Chicago Press, Chicago, 1953
- Boughey, A. S. Man and the Environment (2nd ed.), Macmillan, New York, 1975
- Colinvaux, P. Introduction to Ecology, John Wiley & Sons, 1966
- Gowell, Thomas Y. Culture, Man and Nature, New York, 1971
- 301.3 Hardesty, D. L. Ecological Anthropology, John Wiley & Sons, New York, 1977
- 301.36 Howley, A. Ecology and Populations, *Science*, 179 : 1196-1201, 1973
- 301.3 James, A. Quinn. Human Ecology, New York, 1950
- Kormondy, E. J. Concepts of Ecology, Prentice Hall, Englewood Cliffs, N. J., 1969
- Moriber, G. Environmental Science, Allyn and Bacon, Inc. Boston, 1977
- Oduen, E. P. Fundamentals of Ecology, 3rd edition, W. Saunders, Philadelphia, 1971
- Sapir, E. Language and Environment, *American Anthropologist*, 14 : 226-42, 1912
- 301.3 Smith, R. L. (ed). The Ecology of Man, Harper and Row, New York, 1972
- Phillip, W. Porter. Environmental Potentials and Economic opportunities—A background for cultural adaptations, *American Anthropologist*, Vol. 67 : 409
- Environment, Culture and Personality, *American Anthropologist*, Vol. 461, 47 : 262, 46 : 1
- Environment and Education, *American Anthropologist*, Vol. 44 : 712
- 572 Sherrington, Charles. Man on his nature, Cambridge, University Press, 1963



613.1 Dallavalle, J. M. Industrial environment and its control, Sir Issac Pitman and Sons Ltd., London, 1948

●  
*Department of Biochemistry, Calcutta University*

35, Ballygunge Circular Road, Calcutta-700019

Phone : 47-3681

576.15 Alexander M. ed. Advances in microbial ecology, New York : Plenum Press, 1977

616.5 Marzulli F. N. & Maibach H. I. ed. Advances in modern toxicology, Washington : Hemisphere Pub. Co. 1977

615.323 Altschul, Sirivon Reis. Drugs and foods from little known plants, Cambridge, Harvard University, 1975

632.6 Ivie, G. Wayne & Dorough, H. W. ed. Fate of Pesticides in large animals, New York, Academic Press, 1977

574.192 Jevons, F. R. The Biochemical approach to life, Lond, George Allen & Unwin, 1964

574.13 Recheigl, M. Nutrition elements and toxicants, Basel, S. Karger, 1977

612.39 Rockstein M. & Sissman, M. L. eds. Nutrition, Longevity & aging, New York, Academic Press, 1976

581.12 Rosenthaler, L. The Chemical Investigation of Plants, London, G. Bell & Sons, 1930

301.243 Baer, Adela S. ed. Heredity and Society, readings in Social, 2nd ed. genetics New York, Macmillan Publishing Co. 1977

631.41 Bear, Firman E. ed. Chemistry of the Soil, New Delhi, Oxford & IBH, 1964

## PART IV

95

- 631.4 Buson, K. C. & Matrone, G.  
The soil factor in nutrition, animal & human.  
New York, Marcell Dekker, 1976
- 581.8761 Beevers, Leonard.  
Nitrogen metabolism in Plants,  
London, Edward Arnold, 1976
- 581.152 Bhatia, Balraj & Ors, eds.  
Selected topics in environmental biology.  
New Delhi, Interprint Publications, 1975
- 612.3 Kallen, D. J. ed.  
Nutrition-Developmental & Social Behaviour,  
U.S. Dept. of Health, Education & Welfare
- 5714.5263 Lockwood, A.P.M.  
Effects of Pollutants on Aquatic Organisms,  
Cambridge, Cambridge University Press, 1976
- 628.5 Loehr Raymond C.  
Pollution control for agriculture.  
New York, Academic Press, 1977
- 575 Shvarts, S. S.  
The Evolutionary ecology of animals,  
New York, Consultants bureau, 1977
- 632.95 Street, Joseph. C. ed. Pesticide Selectivity.  
New York, Marcd Dekker, 1975
- 573.21 Sutton, H. E. & Harris, M. ed.  
Mutagenic effects of environmental Contaminants.  
N. Y. Academic Press, 1972
- 540 Turekian, Karl, K. Chemistry of the Earth.  
New York, Holt, Rinehart & Winston Inc. 1972
- 574.192 Board, R. G. & Lovelock, D. W. eds.  
Sampling microbioiogical monitoring of environments,  
London, Academic Press, 1973
- 574.5222 Brown, AWA. Ecology of Pesticides.  
New York, John Wiley & Sons, 1978
- 615.9 Bruin, A. De.  
Biochemical Toxicology of environmental agents.  
Amsterdam, Elsevier, 1976



- 681.152 Downs, R. J. and Hellmers, H.  
Environment & the experimental control of plant growth.  
London, Academic Press, 1975
- 615.9 Matsunuire Fumia & others eds.  
Environmental Toxicology of Pesticides.  
New York, Academic Press, 1972
- 574.5 Mc. Naughton, S. J. & Wolf L. L.  
General Ecology.  
New York, Holt, Rinehart & Winston, 1973
- 540 Moore, John & Moore, Elizabeth A.  
Environmental Chemistry,  
New York, Academic Press, 1976
- 632.95 Watson, David & Brown AWA.  
Pesticide management and insecticide resistance,  
New York, Academic Press, 1977
- 576 Wedberg, Stemley, E. Microbes & you.  
Calcutta, Oxford & IBH Publishing Co. 1966
- 574.52 Florkin, M. & Schoffeniels.  
Molecular approaches to Ecology.  
New York, Academic Press, 1969

### Journals

Annual Review of Biochemistry—Aunual Reviews  
Palo Alto, California

Journal of Bacteriology—Publication of the American  
Society of Microbiology. N. W. Washington

Nature— Macmillan Journals Ltd.

Science—Published by American Association for the  
Advancement of Science. N. W. Washington



*Department of Geography, Calcutta University*

35, Ballygunge Circular Road, Calcutta-700019

Phone : 47-3681

- 550.19 Adams, F. D.  
The Birth and development of the geological sciences.  
N. Y. Dover Pab, 1938
- 631.7 Addison, E. Land, Water and Food,  
Chapman & Hall, 1955
- 301.32954 Agarwala, S. N. India's Population Problems.  
Bombay, Tata Mc-Graw Hill, 1972
- 630.2575 Azzi, G. Agricultural ecology. 1956
- 630.954 Agricultural land use in India.  
Study by Noor Mohammad, 1978
- 581.6 Anderson, E. Plants, man and life.  
Boston, Little Brown & Co. 1952
- 581.6 Ambasht, R. S. (A) Text book of Plant ecology.  
Varanasi Students, Friend & Co. 1969
- 631.45 Archer, S. G. Soil Conservation.  
Norman, Univ of Oklahoma Pr. 1956
- 549 Ball, H. W. Splendour in nature, minerals & rocks.  
Paris, Libraric Larousse, 1956
- 910.18 Barreth, EC & Curtis, L. F.  
Introduction to environmental remote sensing.  
London, Chapman & Hall, 1976
- 551.5 Barry, R. G. & Chorley, R. J.  
Atmosphere, Weather & Climate.  
Lond, Methuen, 1971
- 910.02 Benneth, R. J. & Chorley R. J.  
Environmental Systems : Philosophy ;  
Analysis & Control
- 575 Carter, G. S. (A) Hundred years of evolution.  
Lond. Sidgwick & Jackson, 1980



- 551.8 Cark, S. P. Structure of the earth.  
Engle wood Cliffs, N. J. Prentice Hall, 1971
- 631.6 Faulekner, E. A. Soil restoration.  
Lond, Michael Joseph, 1953
- 551.5 Lamb H. H. Climate : Present, past & future.  
Lond, Methman, 1972
- 551 Beckinsale, R. P.  
Land, air and ocean. 1943
- 631.4954 Roychoudhuri, S. P.  
Land resources in India. Indian Soils, their classification, occurrence and properties.  
Indian Planning Commision, 1964
- 550 Laporte, Leo, F. Encounter with the Earth.  
San Francisco, Confield, Pr. 1975

### Journals

- Economic Geography (U.S.A.)
- Geographical journal (U.K.)
- Geographical review (U.S.A.)
- Indian Journal of Power and River valley development (India)
- Journal of American Institute of Planners (U.S.A.)
- Geo-Abstracts (A-G.) (U.K.)
- Research Papers (U.S.A.)
- World Today (U.K.)



## PART IV

99

*Department of Geology, Calcutta University*

35, Ballygunge Circular Road, Calcutta-700019

Phone : 47-3681

- 551.9 Ahrems, L. H. ed.  
Origin & distribution of the elements.  
Oxford, Pergemon Press, 1968
- 551 Ahrems, L. H. ed. Physics & Chemistry of the earth.  
Lond. Pergemon Press, 1956
- 591.5 Allee, W. C. and others.  
Principles of animals ecology.  
Lond. W. B. Saunders, 1959
- 591.9 Allce, W. C. & Schmidt, Kenl. P. ed.  
Ecological animal geography.  
2nd ed. W. Y., John Wiley & Sons Inc 1951.
- 339.49 Allen, S. W.  
Conserving natural resources, 1955
- 502.4 Bailey, D. K. & Macdonald, R. ed.  
The evolution of the crystalline rocks.  
London, Academic Press, 1976
- 549 Ball, H. W. Splendour in nature, minerals and rocks.  
Paris, Librairie Laraousse, 1959
- 553 Bandopadhyaya, D. K. Mineral resources of India.  
Calcutta, West Bengal State Book Board, 1970
- 551.46 Barnes, H. Oceanography & Marine Biology
- 553 Bateman, A. M.  
The Formation of Mineral deposits, 1951
- 665.77 Batteke Memorial Institute,  
Yos, L. Economics of Fuel gas from Coal.  
Mc Graw-Hill Book Co., Inc. 1950
- 631.41 Bear, Firman E. Chemistry of the soil ;  
2nd ed. Calcutta, Oxford & IBM Pub, 1968
- 551 Beckinsale ; R. P. Land, air and ocean.  
London, Dusk worth, 1943



100

SPECTRUM

- 553.28 Beeby—Thompson, A. Oil Field Atlas.  
London, The Technical Press Ltd. 1952
- 631.4 Benneth, Heigh Hammond. Soil Conservation,  
N. Y., Mc Graw-Hill Book Co., Inc. 1939
- 301.31 Betz, Fredrick, ed. Environmental Geology,  
Stronds burg, Dowden, Hutchinson and Ross,  
1975
- 551.4 Bradshaw, M. J. and others.  
(The) Earths Changing Surface,  
London, E.L.B.S., 1979
- 596 Carter, G. S.  
Structure & Habit in Vertebrate Evolution,  
London, Sidwick & Jackson, 1967
- 537.46 Carson, R. L. (The) Sea around us,  
2nd ed., London, Staples Press, 1957
- 551.7 Cloud, Preston. Adventures in earth history,  
San Francisco, W. H. Fireman & Co., 1970
- 575 Colbert, Edwin H.  
Evolution of the Vertebrates : a history of the  
background animals through time,  
New Delhi, Wiley Eastern, 1976
- 550 Eardley, A. J., Science of the earth,  
New York, Harper & Row, 1972

Journal

Earth Science Reviews—Elsevier Scientific Publishing Company.



*Department of Physiology, Calcutta University*

92, A. P. C. Road, Calcutta-700009

Phone : 36-9186

574.52 Bligh, J. Environmental Physiology of animals,  
1976



## PART IV

101

- 573 Lee, Douglas H. K. Physiology Environment and man, 1970
- 574.191 Vander (AJ). Human Physiology and the environment in health and disease, 1976
- 576.15 Edmonds, Paul. Microbiology, an Environmental Prospective, 1978
- 613.2 Cralley, L. V. Industrial Environmental Health, 2nd edn., 1975
- 614.792 Nemerow, N. L. Industrial Water Pollution, 1978
- 574.5222 Khan, MAQ & Bederka, John, P. Survival in Toxic Environment, 1974
- 62.853 Vesilind, P. A. Environmental Pollution and Control, 1975
- 604.70154 Meyer, Eugene. Chemistry of Hazardous Materials, 1977
- 614.7 Lee, S. D. ed. Biochemical Effects of Environmental Pollutants, 1977
- 613.62 Trevethick, R. A. Environmental and Industrial Health Hazards ; a practical guide, 1973
- 628.530941 Parkar (A). Industrial air pollution handbook 1978
- 628.53 Cramford, Martin. Air Pollution Control Theory, 1976
- 614.7 Magill, p L. Air Pollution Handbook, 1956
- 614.71 Perkins, Henryc. Air Pollution, 1974
- 614.7 Platt, R. B. & Griffiths, J. F. Environmental measurement and interpretation, 1964
- 62.014 Campbell, G. S. Introduction to environmental Biophysics.
- 301.31 Holdgate, Martin. Environmental Issues, 1977



102

SPECTRUM

574.5 Tribe, A. Ecological Principles, 1975

574.5 Kendigh, S. C. Ecology with Special Reference to Animals and Man, 1975

*Department of Zoology, Calcutta University*

35, Ballygunge Circular Road, Calcutta-700019

Phone : 47-3681

591.5 Adams, Charles C.

Guide to the Study of Animal Ecology,  
New York, Macmillan Co., 1913

591.5 Alle, W. C. & Ors. Principle of Animal Ecology,  
London, W. D. Saunders Co., 1950

591.5 Alle, W. C. & Schmidt, Karl, P.

Ecological Animal Geography, 2nd ed.  
John Wiley & Sons, London

632.9 Apple, J. L. & Smith, R. F. eds.

Integrated Pest Management,  
Plenumpress, 1976

591.5 Andrewartha, H. G. & Birch, L. C.

Distribution & abundance of animals of Chicago,  
University of Chicago Press, 1954

Advances in Ecological research, London, New York  
Academic Press-19

V-1 Ed by J. B. Cragg—1962

V-3 .. .. .. .. —1966

V-4 .. .. .. .. —1967

V-5 .. .. .. .. —1968

639.3 Bardach, J. E. & Ors. Aquaculture, 1972

595.7 Beeson, C. F. C. Ecology & Control of the forest insects of India and the neighbouring countries

591.5 Boughey, A. S. Ecology of Populations, 1968



## PART IV

103

- 591.5 Boughey, A. S. Fundamental Ecology,  
London, inter text books, 1971
- 632.6 Brown, A. W. A. Ecology of Pesticides,  
N. Y., John Wiley & Sons, 1978
- 595.7 Clark, G. L. Elements of Ecology,  
John Wiley & Sons, 1954
- 639.9 Clark, John R. Coastal ecosystem management ;  
a technical manual for the conservation of coastal  
zone resources, New York, John Wiley & Sons
- 574.5 Clements, E. S. Adventures in Ecology,  
New York, Pageant Press, 1960
- 574.5 Clements, F. E. and Shelford, V. E. Bio-ecology,  
John Wiley & Sons, London, 1947
- 574.1915 Coggle, J. E. Biological effects of radiation,  
1971
- 591.5 Darnell, R. M. Organism & Environment :  
a manual of quantitative ecology  
San Francisco, W. H. Freeman & Co., 1971
- 574.9 Dansereau, Pierre. Biogeography :  
an ecological perspective, 1957
- 591.5 Davis, David E., Ed.  
Behaviour as an ecological factor, 1974
- 632.96 De-Bach, Paul,  
Biological control of insect pests & weeds,  
Chapman & Hall, 1970
- 574.424 Dempster, J. P. Animal population ecology,  
London Academic Press, 1975
- 591.5 Edington, J. M. & Edington, M. Ann  
Ecology & Environmental Planning, 1977
- 591.5 Elton, C. Animal ecology, 1972
- 574.524 Elton, C. S.  
Ecology of invasions by animals and plants, 1958
- 591.5 Emlem, J. Merritt, Ecology, 1975



- Odum, Eugene P. Fundamentals of Ecology
- 574.50184 Hall, Charles A. S. & Day, J. W., Eds.  
Ecosystem modelling in theory & practice, 1977
- 591.5 Hesse, Richard. Ecological animal geography, 1937
- 574.5 Krebs, C. J. Ecology : The experimental analysis  
of distribution and abundance, 1972
- 591.5 Kendeigh, S. Charles. Animal Ecology, 1961
- Kormondy. Concept of ecology
- 301.31 Kozlovsky, Daniel G.  
Ecological and Evolutionary ethics, 1974
- 597.092 Lowe-Mc Connell, R. H.  
Ecology of fishes in tropical water, 1977
- 591.5 Mcclusky, Donald S. Ecology of Estuaries, 1971
- 574.24 Mc-Intyre, A. D. & Mills, C. F., ed.  
Ecological toxicology research, 1975
- 614.432 Muirhead-Thompson, R. C.  
Ecology of insect vector population, 1968
- 575.1 Morgan, C. Lloyd. Eugenics & Environment, 1919
- 574.2632 Moss, Brain. Ecology of fresh water
- 575.1 Merrell, David J. Ecological genetics
- 575.22 Parsons, P. A. Behavioural and Ecological Genetics ;  
a study in Drosophila, 1973
- 591.5 Pielou, E. C. Ecological diversity, 1975
- 597.05 Poddubry, A. G. Ecological topography of fish  
population in reservoirs, 1976
- Proceedings of the third Scar Symposium on antartic  
biology, 1977
- Adaptation within antartic ecosystem
- Pearse, A. S. Animal Ecology, 1939



## PART IV

105

- 574.929 Reid, G. K. Ecology of Inland water & estuaries, 1961
- 574.5 Rodgers, C. Leland & Kresteller, R. F. Ecosphere : Organisms, habits & disturbances, 1974
- 599 Sadlier, James Juan. Ecology of reproduction in wild & domestic mammals, 1969
- 591.5028 Southwood, T. R. E. Ecological method with particular reference to the study of insect populations, 1971
- 599.3233 Spillett, James Juan. Ecology of reproduction in wild & domestic mammals, 1969
- 599.05 Stoddart, D. Michael. Ecology of small mammals, 1979
- 574.5 Simmons, I. G. Ecology of Natural resources
- 301.31 Sprout, Harold and Sprout, Marget Ecological perspective on human affairs, 1965
- 632.96 Thompson, W. R. The Biological control of insect and plant pests, 1930
- 591.5 Wallwork, John A. Ecology of Soil Animals, 1970
- 591.5 Watt, K. E. F. Ecology & resource management, 1968



*All India Institute of Hygiene and Public Health*

110, Chittaranjan Avenue, Calcutta-700073

Phone : 34-5271

- 628 Dawson, J. A. & Doornkamp, J. C. Evaluating the Human Environment, Edward Arnold, 1973
- 628 Rich, Linvil, G. Environmental Systems Engineering, Mc Graw-Hill, 1973



106

SPECTRUM

- 628 Chanlett, Emil. T. Environmental Protection, Me Graw-Hill, 1973
- 331.827 Bond, Richard G. & Straub, Conrad P. Handbook of Environmental Control, Vol.—1, 2, 3, 4, 5, CRC Press, 1972
- 628.5 Berthonex, P. Mac, & Rudd, Dale F. Strategy of Pollution Control, John Wiley & Sons, 1977
- 331.824 Philips, J. G. Environmental Physiology, Blackwell Scientific Publication, 1975
- 621 Luptak, Bela G. Environmental Engineer's Handbook, Vol—1, 2, 3, Chilton Book Company, 1974
- 331.827 Stern, Arthur C. Air Pollution, Vol—1, 2, 3, 4, 5, Academic Press, 1977
- 331.827 Linch, A. L. Evaluation of Ambient Air Quality by Personnel Monitoring, Vol—1, 2, CRC Press, 1981
- 331.827 Krenkel, P. A. Heavy Metals in the Aquatic Environment, Pergamon Press, 1975
- 628.5 Nemerow, Nelson Lo, Industrial Water Pollution, Addison-Wesley Publishing Company, 1978
- 628.5 Black, John A. Water Pollution Technology, Reston Publishing Company, 1977
- 628.1 James, G. V. Water Treatment, Technical Press, 1971
- 628.1 Ciaccio, Leonard L. Water & Water Pollution Handbook, Marcel Dekker, 1971
- 628.1 Wisler, Chester O. & Brater, Ernest F. Hydrology, John Wiley & Sons, 1959
- Berelson, Bernard and Steiner, Gary A. Human Behavior, Harcourt, Brace & World, 1964



## PART IV

107

331.822 Crocker, Malcolm J. & Price, A. John,  
Noise and Noise Control,  
Vol—1, 2, CRC Press, 1975

331.822 Burns, William Noise & Man,  
John Murray, 1973

331.827 Weiss, Bernard and Leaties, Victor G.  
Behavioral Toxicology, Plenum Press, 1975

301.3 John Cairns, Jr.  
The Recovery Process in Damaged Ecosystems,  
Ann Arbor Science, 1980

### Journals

Journal of Water Pollution Control Federation (Monthly)  
Water Pollution Control Federation, Washington

Water Pollution Control (Quarterly),  
Journal of the Institute of Water Pollution Control,  
(Maidstone, Kent)

Environmental Science & Technology (ES & T)  
American Chemical Society

Journal of Applied Physiology,  
(Respiratory, Environmental and Exercise Physiology)  
The American Physiological Society

Indian Journal of Environmental Health (Quarterly),  
National Environmental Engineering Research Institute,  
Nagpur

American Journal of Epidemiology (Monthly),  
Editor—Comstock, George W.  
The John Hopkins University School of Hygiene and  
Public Health,  
(Chittaranjan National Cancer Research Centre)

*American Centre Library*

7, Jawaharlal Nehru Road, Calcutta-700013

Phone : 23-7411

- 301.31 Environment, V. 12-22, 1970-1980, Washington :  
Helen Dwight Reid Educational Foundation,  
I/V in microform, monthly, 1970-80
- 301.3 Caldwell, Lyton Keith. Environment :  
a challenge for modern Society (1st ed.)  
Garden City, New York, Natural History Press, 1970
- 301.31 Murdoch, William W. (ed). Environment :  
resources, pollution & Society (2nd ed.),  
Sutherland, Mass : Sinauer Associates, 1975
- 336.7 Environment and health—Washington D. C. :  
Congressional Quarterly, Inc, 1981
- 333.7 The Environment and its resources by Roul A. Deju  
and Others, New York, Gordon and Breach, 1972
- 304.2 Wagner, Richard H. Environment and man, 3rd ed.  
New York, Norton, 1978
- 628.5 Leh, Francisk. Environment and Pollutions,  
Springfield, T. U. Thomas, 1974
- 301.3 Waldron, Ingmid. Environment and Pollution :  
Problems and Solutions, New York, Holt, Rinehart  
and Wireton, 1973
- 301.11 Altman, Irwin. The environment and social  
behaviour : Privacy, personal space, territory, crowding  
Monterey, California Brooks-Cole Pub. Co., 1975
- 301.31 Holmes Nicholas (ed). Environment and the  
Industrial Society, Waterview Press, 1976
- 344 Sloan, Irving J. Environment and the law (2nd ed.),  
N. Y., Ocean Publications, 1979
- 301.3 American Academy of Political and Social Science,  
Philadelphia, The Environment and the quality of life :  
World view/Special edition : Marvin E. Wolfgang,  
Philadelphia, The Academy, 1979



## PART IV

109

- 301.3 Ralph Nader Congress Project.  
The environment committees : a study of the House  
and Senate Interior. Agriculture and Science  
Committees/Ralph Nader Congress Project,  
New York, Grossman Publishers, 1975
- 711 Environment for man : The next fifty years, ed.,  
by William R. Ewald, Jr. Bloomington,  
Indiana University Press, 1967
- 304.2 Schnaiberg, Allan. The environment,  
from Surplus to Scarcity,  
New York, Oxford University Press, 1980
- 301.2 Aaron W. Warner, Dean. Morse, and  
Thomas, E. Cooney.  
(Editors) The environment of change  
N. Y., Columbia University Press, 1969
- 301.31 Pearson, Charless. Environment North and South :  
an economic interpretation,  
New York, Wiley, 1978
- 301.31 Goldwin, Thomas N. Environment,  
Planning and the multinational corporation,  
Greenwich, Conn., Jai Press, 1977
- 729 Doelle, Leslie L. Environmental acoustics,  
New York, McGraw Hill, 1972
- 363.1 Lee Stephenson and George R. Zachar.  
Accidents will happen : the case against nuclear power,  
New York, Harper and Row, (1st ed.), 1979
- 550 Flawn, Peter Tyrell. Environmental geology :  
Conservation, Land use planning and resource  
management, New York, Harper and Row, 1970
- 341.7 Barros, James Comp. The international law of  
Pollution, (compiled by) James Barros (and)  
Doughlas M. Johnston, New York, Free Press, 1974
- 620.2 Magrab, Edward B. Environmental Noise Control,  
New York, Wiley, 1975
- 301.31 Levine Norman D (ed.). Human Ecology,  
North Scituate, Mass, Duxbury Press, 1975



301.3 Brubaker, Sterling. To live on earth :  
Man and his environment in perspective. Baltimore,  
Published for Resources for the future. Inc.  
John Hopkins Press, 1972

363.6 Christman, R. F. et al (ed). The natural environment,  
Waste and control, Pacific Palisades, Calif,  
Goodyear Pub. Co., 1974

301.31 Priest, Joseph.  
Problems of our Physical environment : Energy,  
Transportation, Pollution, Reading, Mass.  
Addison-Wesley, 1973.

363.6 Simonds, John Ormbbee.  
Earthscape : a manual of environmental planning,  
N.Y. McGraw Hill, 1978

520.8 Shonle, John I.  
Environmental application of General Physics,  
Reading, Mass, Addison-wesley Pub. Co., 1975

333.7 Dassman R. F. Environmental Conservation—[4th ed]  
New York, Wiley, 1976

301.31 Swan, James A and William B Stepp (ed).  
Environmental Education ; Strategies toward a more  
livable future. Beverly Hills,  
California Sage Publications, 1974

333.9 White Boulder, G.F. (ed),  
Environmental effects of complex river development,  
Boulder, Colo, Westview Press, 1977

628.5 Chermisinoff, Paul A. and Richard A Young (editors).  
Pollution Engineering practice handbook,  
Ann Arbor-Michigan : Ann Arbor Science Publishers,  
1975

620.8 Rich, Linvil Gene,  
Environmental system engineering,  
New York, Mc Grow Hill, 1973

363.6 Sewell, Gnanville, H,  
Environmental quality management,  
Engle wood cliff, N.J. Prentice-Hall, 1975



## PART IV

111

- 628 Liptak, G. Bela (ed).  
Environmental engineers' handbook  
Randor, Penn, Chilton Books Co., 1974
- 301.31 Daete, Douglas, and Richard H. Pantell (ed).  
Environmental modeling analysis and management  
Standsburg, Pa,  
Dowden, Hutchinson and Ross, 1974
- 
- American University Centre Libraries*
1. Bidhan Sarani, Calcutta-700073
- Phone : 34-0275
- 614.7 Lak B/C/M/ND Lake, Elizabeth E.  
Who pays for clean water ? The distribution of water pollution control costs. By elizabeth E. Lake William M. Hanemann, and Sharon M. Oster. Westview, 1979
- 508B Scientists at work : The creative process of Scientific Research. Edited by John Noble Wilford.  
Dodd-Mead, 1979
- 301.3 B/C/M/ND/AVC American Academy of Political and Social Science, Philadelphia. The environment and the quality of life : A world view. Special editor : Marvin E. Wolfgang, The Academy, 1979
- 301.18 B/C/M/ND/AVC Mazmanian, Daniel A.  
Can organisations change ? Environmental protection, citizen participation and the corps of engineers. By Daniel A. Mazmanian and Jeanue Nienaber, Brookings Institution, 1979
- 300 Lin C Lindblom, Charles Edward.  
Usable knowledge : Social Science and Social Problem solving Charles E. Lindblom and David K. Cohen Yale Univ, 1979
- 301.31 Mor B/M Moran, Joseph M.  
Introduction to environmental science.  
Joseph M. Moran, Michael D. Morgan, James, M. Wiersma W. H. Freeman, 1980



574.999 Asi B/C/M Asimon, Isaac.  
Extra-terrestrial Civilizations  
Crown Pub, 1979

530.1 Ein M Albert Einstein's. Theory of general Relativity,  
Edited by Gerald E. Tauber, Crown Pub. 1979

575 Aya B/ND Ayala, Francisco Jose.  
Evolving : The theory and processes of organic evolution.  
Francisco J. Ayala, James W, Valetine,  
Benjamin/Cummings Pub., 1979

697 Bra M. Braden, Sprnille.  
Successful Solar energy Solutions Sprnille Braden, III,  
Kathleen Steiner, with Alvin O'Konski, Van Nestrand,  
1980

697 B/C/ND Gropp, Louis.  
Solar Houses : 48 Energy-saving Designs.  
Pan-Theon Books, 1978, 160 P.

621.47 M Kreith, Frank. Principles of Solar Engineering,  
Frank Kreith, Jan F. Kreider, Hemisphere Pub. Corp.  
1978

508 B/M Scientists at work : The creative process of scientific  
research Edited by John Noble Wilford ; illustrated  
with photographs Dald, Head, 1979

301.32 B/ND Human migration ; Patterns and Policies,  
Edited by William H. Mc. Neill and Ruth S. Adams,  
Indiana Univ, 1978

669 Bic C/M/ND Bickel, Lennard. The deadly element :  
The story of Uranium, Stein, 1979

575.1 Lap C/M/ND Lappe, Marc.  
Genetic Politics : The limits of biological control ; Silmon  
and Schuster, 1979

301.42 Con M/ND Contemporary theories about the family.  
Edited by Wesley R. Burr and others,  
Free Press, 1979

614.7 B/C/ND Lave, Lester B.  
Air Pollution and Human Health,  
by Lester B. Lave and others,  
Johns Hopkins University, 1977



PART IV

113

301.41 B/M/ND Women and Men. Traditions and Trends,  
edited by Suzanne Fremon, Wilson, 1977

301.31 C/AUC Bennet, Robert John.  
Environmental Systems : Philosophy, Analysis and  
Control. By R. J. Bennet and R. J. Chorley,  
Princeton University, 1978

697 M/ND Dubin, Fred S. Energy Conservation Standards  
for Building Design, Construction and Operation.  
Fred S. Dubin, Chalmers G. Long,  
Jr. McGraw Hill, 1978

301.31 C/ND Horne, Ralph Albert.  
The chemistry of our environment,  
R. A. Horne, Wiley, 1978

574 B Miller, James Grier. Living systems,  
McGraw Hill, 1978

500 B/C Science Fact. Astounding and exciting  
Developments that will transform your life,  
Edited by Frank George, Sterling Pub., 1978

628 B/C/M/ND Cornell Agricultural Waste Management  
Conference 8th, 1976  
Land as a waste management alternative :  
Proceedings of the 1976 Cornell agricultural  
management conference, edited by Raymond C. Loehr,  
Ann Arbor Science, 1977

577 B/C/M/ND Jastrow, Robert. Until the Sun Dies,  
Norton, 1977

501 B Simon, Herbert Alexander. Models of discovery  
and other topics in the methods of Science,  
D. Reidal, 1977

628.7 C/M/ND Wright, Forrest Blythe.  
Rural Water Supply and Sanitation, 3rd ed.,  
Robert E. Krieger, 1977

363.3 B/ND Burton, Ian. The Environment as Hazard,  
by Ian Burton and others, Oxford 1978

301.31 B/C/M/ND Environmental improvement through  
Economic incentives, by Frederick Anderson and others,  
Johns Hopkins University, 1977



- 363.6 B/C Simonds, John Ormsbee. *Earthscape : A manual of Environmental planning*, McGraw Hill, 1978
- 696 B/M/ND Mazria, Edward. *The passive solar energy book : A complete guide to passive solar home, Greenhouse and building design*. By Edward Mazria, Russel Ball-Rodale, 1979
- 533 C Armstead, H. Christopher H. *Geothermal Energy : its past, present and future contributions to the energy needs of man*, Wiley 1978
- 574.5 B Freshwater wetlands : Ecological processes and management potential, Edited by Ralph E. Good, Dennis F. Whigham, Robert L. Simpson ; technical editor : Crawford G. Jackson, Jr., Academic, 1978
- 697 B/ND Gropp, Louis. *Solar Houses : 48 Energy Savings Designs*, Pantheon, 1978
- VTR 582 C/M Supertree and Experimental Forests USICA, New Delhi, 1979
- 669 Bic M/ND Bickel, Lennard. *The Deadly element : The story of Uranium Stein*, 1979
- 508 Sci B/C/M Scientists at work : The creative process of Scientific research, Edited by John Noble Wilford ; illustrated with photographs, Dodd, Mead, 1979
- 500.1 B Asimov, Isaac. *A choice of Catastrophies : The disasters that threaten our world*, Simon and Schuster, 1979
- 628.1 B Culp, Gordon L. *Field manual for performance evaluation and troubleshooting at municipal waste water treatment facilities*, By Gordon L. Culp, Nancy Folks Hein for Environmental Protection Agency, U. S. Govt. Print. off, 1978
- 574-999 B/C/M/ND Edelson, Edward. *Who goes there ? The search for intelligent life in the Universe*, Doubleday, 1979



## PART IV

115

### Bose Institute

93/1, A. P. C. Road, Calcutta-700009

577.4 Altman, Philip L. Environmental Biology :  
Maryland, Federation of American Societies for  
experimental biology, 1966

577.4 Odum, Eugene P. Fundamentals of Ecology 3rd ed.  
London, W. B. Saunders Co., 1971

577.4 Usher, M. B. Biological Management and  
Conservation :  
Ecological theory, application and planning.  
London, Chapman & Hall, 1973

577.4 Sanders, B. S. Environment & growth, 1934

577.4 : 576.12 Walken, Jerome J.  
Photoprocess, Photoreceptors & evolution.  
N. Y., Academic Press, 1975

577.4 Govt. of India.  
Department of Science and Technology,  
World environment day : June 5, 1979,  
New Delhi : Dept. of Science & Technology, 1979

577.4 Dunbar, M. J.  
Ecological development in Polar regions : a study in  
evolution. N. J. Prentice Hall, Inc., 1968

577.471 : 612.017 Aerobiology & its modern applications.  
Report No. 3, July 1973. Aerobiology : a new discipline  
for combating diseases, pests & allergens, 1974

577.472 Harvey, H. W.  
Recent advances in the chemistry & biology of Sea  
water, 1945

577.472 Rheinheimer, G. ed.  
Microbial ecology of a brackish water environment.  
Berlin, Springer-Verlag, 1977

577.48 Sondheimer, Ernest & Simeone, John B. [ed]  
Chemical ecology, N. Y. Academic Press, 1970

577.6 Wheeler, L. R.  
Vitalism : its history & validity, 1939



- 577.7 Finch, Caleb E. & Hayflick, Leonard ed.  
Handbook of the biology of aging,  
N. Y. Van Nostrand Reinhold Co. 1977
- 577.7 574/578 Society for Experimental Biology,  
Symposium No. 21 ; Aspects of the biology of aging,  
Cambridge, Univ. Press, 1977
- 577.4 Coulston, Frederick & Korte, Friedhelm Globors Aspects  
of Chemistry, toxicology and technology as allied to the  
environment,  
N. Y. Academic Press, 1972
- 577.4 Selikoff, Irving J and Lee Douglas H. K.  
Asbestos and Disease,  
New York : Academic Press, 1978
- 577.4 Odum Eugene P. Ecology  
N. Y. Holt, Rinehart and Winston, 1963
- 577.4 Smith, Kendric C.  
Photochemical and Photobiological reviews  
N.Y. Plenum Press, 1979
- 577.4 : 5815 Brookhaven National Laboratory,  
Diversity and Stability in ecological systems,  
No. 22, N.Y. BNL, 1969
- 577.4 Lockwood APM ed.  
Effects of Pollutants on aquatic organisms,  
Cambridge, 1976
- 577.4 Cragg, J. B. Advances in ecological research,  
London, Academic Press
- 577.471 Nilsson, Siwert ed. Scandinavian aerobiology  
Sweden, Swedish Natural Science,  
Research Council, 1973
- 577.472(28) W 445 Welch Paul S. Limnology,  
N. Y. McGraw Hill, 1935
- 577.473 581.1 Bohm Wolfgang,  
Methods of studying root systems  
Berlin, Springer Verlag, 1979
- 577.5 M 381 Mason, C. F. Decomposition,  
London : Edward Arnold, 1977



## PART IV

117

577.7 C 734 Comfort Alex. Ageing,  
London Routledge & Kegan Paul, 1964

577.7 K 916 Krohn Peter L.  
Topics in the Biology aging,  
London, Interscience Publishers, 1966

577.13 P 316 Pearl, R. and Pearl R. D.  
Ancestry of the London bird, 1934

### Journal

Environmental & Experimental Botany



*British Council Library*

5, Shakespeare Sarani, Calcutta-700071

Phone : 44-5378/9/0, 44-4804, 44-9108, 44-9147

The books listed here are all available on loan from the Calcutta Library and photocopies of journal articles may also be obtained at a charge.

338.476285 Burrows, P.  
The economic theory of pollution control,  
Martin Robertson, 1979

363.73 Holgate, M. W.  
A perspective for environmental pollution,  
Cambridge University Press, 1979

388.474 Brierley, J. Carpuring and the environment,  
The Institution of Municipal Engineers, 1979

388.4 Cresswell, R.  
Passenger Transport and the Environment,  
Leonard Hill, 1979

388 Highways and the Environment,  
The Institution of Civil Engineers, 1978

711.7 Radcliffe, J. W. Traffic Engineering as an aid to the protection and improvement of the environment,  
The Institute of Municipal Engineers, 1973



- 388 Sharp, C. *Transport and the environment*,  
Leicester University Press, 1976
- 711.4 Joycee, F., (ed). *Local government and the environmental planning and control*,  
Gower Press, 1981
- 333.7 Nwankiti, Dr. O. C. *Man and his environment*,  
Longman, 1981
- 628.168 Mason, C. F. *Biology of Freshwater pollution*,  
Longmam, 1981
- 363 Sugden, F. G.  
*Health Protection in the urban environment*,  
Associated Business Press, 1980
- 628.168 Water pollution research and development :  
Proceedings of a conference held in Toronto,  
Canada 23-27 June, 1980, Parts 1-4 (Vols.),  
Pergamon Press, 1981
- 388.1 Watkins, L. H. *Environment impact of roads and traffic*  
Applied Science Publishers, 1981
- 304.2 Cooper, C. *Economic evaluation and the environment : a methodological discussion with particular reference to developing countries*,  
Holder and Stoughton, 1981
- 711 Edington, J. M. *Ecology and environmental planning*,  
Chapman and Hall, 1979
- 307.76 Rappaport, A. *Human aspects of urban form : towards a man-environment approach to urban form and design*, Pergamon Press, 1977
- 333.73 Selman, P. H. *Ecology and planning ; an introductory study*, George Godwin, 1981
- 628.1 A. Agarwal and others. *Water, Sanitation, Health—for all.*  
*Prospects for the International Drinking Water Supply and Sanitation Decade, 1981-90*, International Institute for Environment and Development, 1981
- 304.28 Pollution : nuisance or nemesis ? A report on the control of pollution, HMSO, 1972



## PART IV

119

363.7384 Harrison, R. M. and Laxen, D. P. H.  
Lead pollution : causes and control,  
Chapman and Hall, 1981

363.7392 Manning, W. J. and Feder, W. A.  
Biomonitoring air pollutants with plants,  
Applied Science Publishers, 1980

344.04 Richardson, G. Policing pollution ; a study of  
regulation and enforcement, Clarendon Press, 1982

304.2 Drew, D. Man-environment Process,  
George Allen and Urwin, 1983

### Journal

Urban Development  
A current Awareness Bulletin  
British Council Library, Calcutta

*Chittaranjan National Cancer Research Centre*

37, S. P. Mukherjee Road, Calcutta-700026

Phone : 47-3045

Le Riche, W. Harding, Milner, Jean.  
Epidemiology as Medical Ecology,  
Churchill Livingstone, 1971

Kraybill, H. F. Mehlman, Myron A.  
Environmental Cancer Vol—3,  
Hemisphere Publishing Corporation, 1977

Fisbein, Lawrence.  
Potential Industrial Carcinogens and Mutagens,  
Elsevier Scientific Publishing Company, 1979

Emmelot, P. Kriek, E.  
Environmental Carcinogenesis, Occurrence, Risk,  
Evaluation & Mechanisms.  
Elsevier/North-Holland Biomedical Press, 1979



*Institute of Basic Medical Sciences*

244, A. J. Bose Road, Calcutta-700020

Phone : 43-2036

1281 Zubes, R. J.

Bacterial mycotic infections of man,  
Pitman Medical Publishing Co. Ltd.,  
London, 1958

753 S. Dagley, Bacteria and the Biochemist,  
Leeds University Press, 1965

2643 Clifton, C. E. Annual Review of microbiology,  
Annual Review Inc. Palo Alto,  
California, U.S.A., 1970

1173 Rivers, T. M.

Viral and Rickettsial infections of man,  
Pitman Medical Publishing Co. Ltd. London, 1959

5887 Burnett, G. W.

Oral microbiology & infectious disease,  
The Williams & Wilkins Company, Baltimore, 1976

2153 G. Turnevall. Recent Progress in Microbiology

Blackwell Scientific Publications Oxford, 1959

### Journals

Metabolism—Publisher Grune & Stratton,  
Inc.—New York

Nutrition Review—Published by the Nutrition  
Foundation, Inc. New York

Microbiological Review—Published by American Society  
for Microbiology

Proceedings of the Society for Experimental Biology and  
Medicine—Published by Academic Press, Inc. New York



## PART IV

121

*Jadavpur University (Food Technology and Biochemical Engineering Department)*

Raja S. C. Mullick Road, Calcutta-700032

Phone : 72-4044

624.131 Mc Carthy, D. F.

Essentials of Soil mechanics & foundations, 1977

628.19 Advances in Water Pollution Research Proceedings of the International Conference held in London September 3 Vols, Edited by B.A. Southgate, Pergamon Press, 1962

628.2/3 Esciritt, I. B.

Sewerage and Sewage disposal, 3rd ed.

Oxford & IBH Publishing Company, 1965

628.1 American Water Works Association water quality and treatment : a hand book of Public Water Supplies  
McGraw-Hill Book Company

628.5 Besseliere, E. B. & Schwartz, M.

The Treatment of Industrial Wastes, 2nd ed.

McGraw-Hill Kogakusha Ltd., 1976

628.8 Nemerow, N. L.

Liquid waste of industry,

Theories, Practices & Treatment,

Addision-Wesley Publishing Company, 1971

628.5 Bethea, R. M. Air Pollution Control technology :  
Van Nostrand Reinhold Company, 1978

628.5 Barerekette, E. S. ed.

Pollution engineering

Plenum Press, New York, London, 1973

614 Purdon, P. W. Environmental Health,  
Academic Press, 1971

6285 Sax, N. I. Industrial Pollution,  
Van Nostrand Reinhold Company, 1974

628 Salvato, J. A. Environmental sanitation,  
Toppan Company Ltd. Tokyo, Japan, 1958



122

## SPECTRUM

546.212 Duck worth, R. B. Water relations of foods  
Academic Press, 1975

628.52 Summer, W. Odour pollution of air,  
Causes & Control, Leonard Hill, London 1971

628.1/2 Steel, E. W. Water Supply and Sewerage  
4th ed. McGraw Hill Kogakusha Ltd., 1960

631.46 Jongerins' A. ed.  
Soil Micromorphology  
Elsevier Publishing Company, 1964

632.951 Metcalf, R. L. and Mckelvey J. J.  
Future for insecticides : needs and prospects,  
Wiley-Interscience Publication, 1976

632.95 Matsumura, F. and others.  
Environmental toxicology of pesticides,  
Academic Press, New York and London, 1972

63:613 Fox, A. Hygiene & Food Production,  
Churchill Livingstone Edinburgh and London, 1971

541.339.5 Borgstrom, G. World food resources Index,  
Educational Publishers, New York, 1973

641.1 Loewenfeld, C.  
Everything you should know about your food,  
Faber & Faber Ltd. London and Boston, 1978

632.95 Melnikov, N. N.  
Chemistry of Pesticides. Springer Verlag,  
New York, Berlin, 1971

628.575 Lund, H. F.  
Industrial Pollution Control hand book,  
McGraw Hill Book Company, 1971

628 Richard G. Bond & Conrad P. Strands.  
Hand book of environmental control 5 Vols.  
CRC Press, 1974

615.9 Plunkett, E. R. Handbook industrial toxicology,  
Chemical Publishing Company INC., 1966

**Journals**

**Journal of Agricultural and Food-Chemistry—An American Chemical Society Publication**

**The Journal of General and Applied Microbiology—Published by the Microbiology Research Foundation**

**The Journal of Nutrition—Official organ of the American Institute of Nutrition**

**The Journal of Antibiotics—Published by Japan Anti-biotics Research Association**

**Applied and Environmental Microbiology—Published by the American Society for Microbiology**



*Jadavpur University (Civil Engineering Department)*

Raja S. C. Mullick Road, Calcutta-700032

Phone : 72-4044

**628.3 Ramalho, R. S.**

Introduction to Waste Water Treatment Processes.  
Academic Press, New York, San Francisco London, 1977

**628.3 Veal, T.H.P.** The disposal of Sewage,  
Chapman & Hall Ltd, 1956

**628.3 Okum, D. A. & Poughis G.**

Community waste water collection and disposal,  
World Health Organization, Geneva, 1975

**628.3 Imhoff, K & Fair, G. M.**

Sewage Treatment Second Edition,  
John Wiley & Sons, Inc. New York, London,  
Toppan Company Ltd. Tokyo-Japan, 1956

**628.575 Eckenfelder, W.W.** Industrial Water Pollution Control.  
McGraw Hill Book Company, 1966

**628.4 Gavin, H.** Sanitary ramblings.

Frank Ross & Co. Ltd., 1971



*Zoological Survey of India, Calcutta*

- 591.5 Adams, Lowell. Population ecology.  
Dickenson Publishing Company, California, 1970
- 591.5 Allee, W. C. and Others.  
Principles of animal ecology.  
Saunders, Philadelphia, 1949
- 591.6 Altman, Philip L and Dittmer, Dorothy S. ed.  
Environmental biology. Federation of American  
Societies for Experimental Biology, 1966
- 591.5 Atwal, A. S. Applied animal ecology,  
Kalyani Publishers, Delhi, 1974
- 591.5 Bartlett, M. S., ed. The mathematical theory of  
the dynamics of biological population,  
Academic Press, London, 1973
- 591.5 Begon, Michael and Mortimer, Martin H.  
Population ecology : a unified study of animals  
and plants,  
Blackwell Scientific Publications, Oxford, 1981
- 591.6 Bennett, George W.  
Management of Lakes and Ponds,  
Van Nostrand Reinhold Company, New York, 1971
- 591.6 Black, John D. Management and conservation  
of biological resources,  
F. A. Davis Company, Philadelphia, 1968
- 591.1 Bligh, J. ed.  
Environmental physiology of animal,  
Blackwell Scientific Publications, Oxford
- 591.5 Boughey, Arthur S.  
Population and environmental biology,  
Dickenson Publishing Company, Belmont, 1967
- 591.6 Brainerd, John W.  
Natural study for conservation :  
a handbook for environmental education,  
Macmillan Company, New York, 1971
- 591.5 Brittin, Wesley E. and others.  
Air and water pollution, Adam Hilger, 1972



## PART IV

125

- 591.6 Brown, A. W. A. Ecology of pesticides,  
John Wiley & Sons, New York
- 591.5 Brown, Leslie. Encounters with nature,  
Oxford University Press, Oxford, 1979
- 591.5 Caldwell, Lynton K. Man and his environment :  
Policy and administration,  
Herper and Row, New York, 1975
- 591.5 Cowell, E. B. ed. The ecological effects of oil  
pollution on littoral communities,
- 591.5 Dasmann, R. F. Environmental conservation,  
John Wiley and Sons, London, 1976
- 591.5 Detwyler, Thomas R. Man's impact on environment,  
McGraw Hill Book Company, New York, 1971
- 591.5 Edington, John and Edington, M.  
Ecology and environmental planning,  
Chapman and Hall, London, 1977
- 591.5 Edward, C. A. ed.  
Environmental pollution by pesticides,  
Plenum Press, London, 1973
- 591.5 Eisenbud, Merril. Environmental radioactivity,  
Academic Press, New York, 1973
- 630 Esmay, Merle L. Principles of animal environment :  
environmental engineering in agriculture and food series,  
Avi Publishing Company, Connecticut, 1969
- 591.5 Gupta, Rajkumar and others.  
Environmental analysis of the Thar Desert,  
English Book Depot, Dehra Dun, 1975
- 592 Hart, C. W. S. and others, ed.  
Pollution ecology of freshwater invertebrate,  
Academic Press, London, 1974
- 591.5 Holdridge, L. R. and others.  
Forest environments in tropical life zones :  
a pilot study, Pergamon Press, Oxford, 1971
- 591.5 Inhaber, Herbert. Environmental indices,  
John Wiley & Sons, New York, Sydney, 1976



126

SPECTRUM

- 591.5 Menzies, Robert J. and others.  
Abyssal environment and ecology of the World Oceans,  
John Wiley & Sons, New York, 1973
- 591.5 Mitchel, Ralph, ed. Water pollution microbiology,  
Wiley Interscience, New York, 1972
- 591.5 Olson, Theodore A. Pollution and marine ecology,  
Interscience Publishers, New York, 1967
- 591.5 Stapp, William B. Environmental education :  
a guide to information sources,  
Gale Research Company, Michigan
- 591.5 Toribara, Taft Y. and Colleman, James R.  
Environmental pollutants : Detection and measurement,  
Plenum Press, New York, 1977
- 591.5 Vernberg, John F. and Vernberg, Winona B.  
The animal and the environment,  
Holt Rinehart and Winston, New York, 1970
-



## PART V

### *Science Clubs in the Eastern Indian States\**

#### **Assam**

1. Students' Science Society,  
K. R. C. Road, Gauhati-781009

#### **Bihar**

1. Rohini Science Club, Kokra, Ranchi-834001
2. Youth Science Club, Ranchi

#### **Mizoram**

1. Science Club, C/o V. H. L. Sailo,  
Directorate of C. D. Mizoram, Aizawl
2. Republic High School Science Club,  
C/o N. L. Chanda. Aizawl

#### **Manipur**

1. Science Club, Manipur, C/o N. Tomba Singh,  
Thombal, 795138, Athokpam, Awangbikai

#### **Orissa**

1. Parija Science Club, C/o Abhiram Kr. Dash,  
At. Telengnsathi, P.O. & Dt. Balasore-756001

#### **Tripura**

1. Kishore Bighan Chakra, Ramnagar Road No. 3,  
Agartala, West Tripura-799002

#### **West Bengal (District wise)**

##### **Bankura**

1. Bankura Science Club, Bankura Block Yuba Kendra,  
Pratapbagan

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\* Sources : Birla Industrial & Technological Museum and  
Eastern India Science Club Association Bulletin.

2. Bankura Block I Science Club,  
C/o Bankura Zilla School, P.O. Bankura
3. Bankura Block II Science Club,  
C/o Purandarpur High School, P.O. Bankura
4. Bankura Science and Technological Club,  
P.O. Durlavpur
5. Bankura Students' Science Centre, Barakalitala,  
P.O. Bankura
6. Barjora Block Yuba Kendra Science Club,  
C/o Beliatore High School, P.O. Barjora
7. Beliatore Science Club, C/o Beliatore High School,  
P.O. Beliatore
8. Khatra Science Club, P.O. & Vill.—Khatra
9. Purandarpur Science Club,  
C/o Purandarpur High School,  
P.O. & Vill—Purandarpur
10. Ramharipur Ramkrishna Mission Science Club,  
P.O. Ramharipur
11. Saltora Block Bigyan Parishad,  
C/o Dr. Bidhan Chandra Vidyapith, P.O. Saltora

**Birbhum**

12. Bolpur Sriniketan Block Science Club,  
C/o Bandhgora Kalikrishna Vidyalaya  
P.O. Bolpur
13. Dubrajpur Block Science Club, C/o S. S. Vidyapith,  
P.O. & Vill—Dubrajpur
14. Illumbazar Block Science Club,  
C/o Hansra High School, P.O. Hansra,  
(Via Sriniketan) Dist. Birbhum

**Burdwan**

15. Science Club, C/o Utpal Bhattacharjee,  
Charaktala, P.O. Katwa

## PART V

129

16. Youth Cultural Forum, Kachhari Road, P.O. Katwa
17. Amra Kajan Science Club, Street No. 84,  
Qrt. No. 46/A, P.O. Chittaranjan-713331
18. Bijnan Parishad, College Para, P.O. Katwa
19. Burdwan Newton Science Club,  
17, Nalinaksha Bose Road, P.O. Burdwan
20. Durgapur Science Club, C/o E/10, New Colony,  
D.T.P.S. (D.V.C.) Waria, Durgapur-713207
21. Kalna Block I Science Club, C/o Block Youth Officer,  
Bhaduripara, Kalna
22. Kalna Block II Bijnan Parishad, Baidyapur,  
P.O. Baidyapur

**Coochbehar**

23. Oasis Science Club, C/o Sri Dinesh Chandra Pal,  
P.O. Tufanganj-736159
24. Tufanganj Science Club, C/o Popular Radio Service,  
P.O. Tufanganj-736159

**Calcutta**

25. Acharya Prafulla Chandra Roy Silpa O Bijnan Bhavan,  
11B, Shyama Prasad Mukherjee Road, Calcutta-25
26. Acharya Satyen Basu Bijnan Sansad,  
3, Sarsuna Main Road, Calcutta-61
27. Advanced Institute for Scientific Invention,  
87/5, Raja S. C. Mullick Road, Calcutta-47
28. Anagh Modelling Centre, 7/29, Podder Nagar,  
P.O. Jodhpur Park, Calcutta-68
29. Anusandhani Bijnan Sangha,  
C27, East Rajapur, Calcutta-32
30. Anwesha Science Organisation,  
14D, N. N. Ghosh Lane, Calcutta-40
31. Annway, 4/30, Bejoy Garh, Calcutta-32

130

## SPECTRUM

32. Bangiya Bijnan Parishad (Hate Kalame Bivagh), P23, Raja Rajkrishna Street, Calcutta-6
33. Behala Govt. Qrts. Recreation Club (Sc. Group), 48/304, Parnasree Central Govt. Qrts. Calcutta-60
34. Sagnik Bijnan Sanstha, West Barisha Housing Estate, Block—R-G, Flat—6, P.O. Thakurpukur, Calcutta-63
35. Banibhavan Science Club, C/o B. B. High School, 38B, Sree Colony, Calcutta-92
36. Baranagar Rabindra Manimela, 98/5, Gopal Lal Tagore Road, Calcutta-36
37. Calcutta Institute of Biology  
Rupniketan, 2/61, Sree Colony, Calcutta-47
38. Cosmic Science Club, L.I.C. Quarters, Flat No. 26, Unique Park, Calcutta-60
39. Creative Ability Centre,  
C/o Birla Industrial and Technological Museum, 19A, Gurusaday Road, Calcutta-19
40. East End Park Science Forum, P-12, Eastend Park, P.O. Kalikapur B. O., Calcutta-78
41. Eastern India Science Club Association, 13, Regent Estate, Calcutta-92
42. Friends Scientific Club, 412D/3, Netaji Subhas Road, Calcutta-47
43. Galaxy, C/o Tapas Banerjee, 20/4/1A, Brindaban Basak Street, Calcutta-5
44. Hindu School Science Centre, 1B, Bankim Chatterjee Street, Calcutta-73
45. Institute of Electronics and Audiovisual Science, 3, Park North, Santoshpur, Calcutta-75
46. Institute of Science and Technological Research, 30, Babubagan Lane, Calcutta-31
47. Jadavpur Science Association, Rupniketan, Sree Colony, Calcutta-47

48. Jadavpur University Science Club,  
C/o Jadavpur University, Calcutta-32
49. Jagadish Chandra Bose Science Club,  
C/o N. N. Chaudhri, 8, Telipara Lane,  
Dhakuria, Calcutta-31
50. Jadavpur Bijnan Chakra, A/10/A Ramkrishna  
Upanibesh, P.O. Jadavpur, Calcutta-32
51. Association of the Society for the Study of Man and  
Nature, 25, Russa Road (south), 1st Lane,  
Calcutta-33
52. Kishore Kalyan Parishad,  
22, Tagore Castle Street, Calcutta-6
53. Little Star Science Club,  
14D, N. N. Ghosh Lane, Calcutta-40
54. Pushpak Science Club,  
15, Kali Kumar Banerjee Lane, Calcutta-2
55. Prince Young Science Club,  
188/25A, Prince Anwar Shah Road, Calcutta-45
56. Science Association of Baranagar,  
C. P. Estate, Qtr. No. N/28, Calcutta-56
57. Science Association of Bengal,  
104, Diamond Harbour Road, Calcutta-8
58. Science Club of Barisha,  
6, Sashi Bhusan Banerjee Road, Calcutta-8
59. Shalik, Tulshibagan, Birati, Calcutta-51
60. Science for Children, Rabindra Sarobar Stadium,  
Block VA, Room No. 8, Calcutta-19
61. Science Forum, C/o Tirthapati Institution,  
142/1, Rash Behari Avenue, Calcutta-29
62. Sabitari Betar Bijnan Club, C/o Ashim Chakrabarti,  
173, Ashokegarh, Calcutta-35
63. Seminal Science Association,  
127, Maharaja Nanda Kumar Road (North), Cal.-35

64. South Calcutta Science Circle,  
4, K. K. Majumdar Road, Santoshpur, Calcutta-75
65. Sri Gopal Chandra Bhattacharyya,  
Bigyan Prasar Samity, 18A, Gouribari Lane, Cal.-4
66. Students' Model Making Society,  
CF-287, Salt Lake City, Calcutta-64
67. Students' Science Association,  
66, Mahesh Barik Lane, Calcutta-11
68. Modern Science and Rural Development Institute,  
3/84 Viveknagar, Calcutta-75
69. Youth Science Corner,  
19/2B Selimpur Road, Cal.-13
70. Youth Scientist Association,  
8, Narendranagar, Calcutta-56
71. Yubak Sangha Science Club, C/o Rabindra Palli,  
P. O. Garia, Calcutta-47
72. Students' Model Making Society,  
50/1 South Road, Calcutta-75
73. Modellar, C/o Abhijit Kabiraj,  
216/A, Bidhan Sarani, Calcutta-6
74. Jawhar Shishu Bhaban (Science hobby centre),  
94/1, Chowringhee Road, Calcutta-20
75. Indian Assoc. of College Going Scientist,  
1, Bompass Road, Calcutta-17
76. Dum Dum Bijnan Sangha,  
P45A, Motijheel Avenue, Calcutta-28
77. Sontoshpur Cultural Forum,  
20, Lake East 6th Road, Calcutta-75
78. Sugata Roy Memorial Centre for Chemistry,  
533, Jodhpur Park, Calcutta-68
79. Sky Watchers' Association,  
134, Raja Rajendralal Mitra Road, Room-7,  
Calcutta-55

80. Students' Science Organisation,  
8, Telipara Road, Calcutta-25
81. Vijnan Prasar Samity, C/o Jagadbandhu Institution,  
25, Fern Road, Calcutta-19
82. Young Scientists' Association,  
11, B. T. Road, Calcutta-56
83. Yuger Sathi, 22/3/1, Canal West Road, Calcutta-6

**Howrah**

84. Acharya P. C. Roy Science Club,  
Palpara Govindrajew High School, Dhulasimla
85. Acharya Satyen Bose Bijnan Samiti,  
C/o Bantul Mahakali High School, P.O. Bantul
86. Antoral Bijyan Gosthi,  
1, Abinash Banerjee Lane, Shibpur
87. Acharya P. C. Roy Bijnan Samity, Anandaniketan,  
P.O. Bagnan
88. Bijnan Tirtha, 1, Jora Aswatthatala Lane,  
P.O. Bally-711201
89. Blue Star Science & Cultural Association,  
P.O. Bagnan, Vill. Khalore
90. Creature, 14/1/6, Sitanath Bose Lane,  
Salkia-711106
91. Dr. Anil Das Smriti Science Club,  
C/o Bangalur, U. C. High School, P.O. Bangalur
92. Howrah Bijnan Parishad, 23, Shibpur Road-711102
93. Howrah Science Association,  
280/1, Netaji Subhas Road-711001
94. Joynagar Pallisree Vidyaniketan Science Club,  
C/o Joynagar Pallisree Vidyaniketan,  
Vill. & P.O. Joynagar
95. Nabarun Sahitya Gosthi (Sc. Wing),  
1/39, Nischinda Ghoshpara, Bally-711201



96. North Howrah Science Association,  
74, Sitanath Bose Lane, Salkia-711106
97. Saraswati Club, 15, Kailash Banerjee Lane-701101
98. Scientific Society of Students',  
Charu Chandra Pal Road, P.O. Jhorehat-711302
99. Shibpur Science Forum, 96, Shibpur Road-711002
100. Sarbik Gram Bikash Kendra, C/o Gopal Ghosh,  
Harop, Bangalur
101. Sri Hari Vidyamandir Science Club,  
C/o Sri Hari Vidyamandir. P.O. Pancharul
102. Nabatirtha Science Centre, Khalore, Bagnan,  
Pin-711303
103. Howrah Bijnan Jagat, 312/1, Circular Road,  
Howrah-2
104. Bagnan Bijnan O Sanskritik Sanstha,  
Khalore, Bagnan
105. Ramendra Sundar Bijnan Chakra,  
C/o Dharsi Mihiral Khan Institution, P.O. Dharsi
106. Udaynarayanpur Bijnan Parishad,  
C/o Sarada Charan Institute, P.O. Udaynarayanpur

### **Hooghly**

107. Arunodaya Club, 47, Pandit Kalinath Bhattacharyya  
Lane, P.O. Serampore
108. Bijnan O Sanskriti Pratisthan,  
3, Gobindo Chandra Bhattacherjee Lane,  
P.O. Serampore,—712201
109. Carey Hobby Centre, C/o Serampore College,  
Serampore
110. Chandernagore Planetarium, Charmandirtola,  
P.O. Gandalpara, Chandernagore
111. Chandernagore Science Club, P.O. Chandernagore

## PART V

135

112. Chinsura Science Club, Shambabu's Ghat Lane,  
P.O. Chinsura
113. Creative Cultural Centre, C/o Kanailal Vidyamandir,  
P.O. Chandernagore
114. Dankuni Vaishali Bijnan Sangstha, P.O. Dankuni
115. Hooghly District Science Club, Badpur,  
P.O. Akuni, Via—Masat
116. Serampore Science Club, 43, Duttagpara Lane,  
Chatra, P.O. Serampore
117. Garalgacha Science Club, P.O. & Vill. Garalgacha
118. Konnagar Science Club,  
31, R. C. Ghoshal Lane, P. O. Konnagar
119. Nabagram Science Club,  
7, Shyama Prosad Road, P.O. Nabagram
120. Pioneers' Group, 1, Sarat Chatterjee Road, Nabagram
121. Satyen Bose Bijnan Samity,  
C/o Ramnagar N.B.P.C. High School,  
P.O. & Vill. Ramnagar
122. Serampore Bijnan Parishad,  
13, Chatterjee Lane, P.O. Serampore
123. Singur Science Club, P.O. Singur
124. Youth Hostel Association,  
2AS, Rishra Rail Park, P.O. Rishra
125. Youth Science Corner, C/o A. Bhattacharyya,  
P.O. Barabahero, Konnagar

**Jalpaiguri**

126. Hasimara Science Club,  
C/o Hasimara High School, P.O. Hasimara
127. Nabajiban Sangha Science Club, Dhupguri
128. Madarihat Science Club, C/o Babul Mitra,  
P.O. Madarihat

136

**SPECTRUM**

129. Sandhani Bijnan Chakra, P.O. Banarhat,  
Pin-735205
130. Salsalabari Model High School Science Club,  
C/o S. Saha, P.O. Salsalabari, 736208
131. Sonapur B. K. High School Science Club,  
P.O. Sonapur
132. Matribani Science Club, C/o Pradip Basak,  
P.O. Dhupguri (Nutanpara), Pin-735210

**Malda**

133. Einstein Memorial Science Club,  
C/o Ramkinkar Balika Vidyasram, 2, Govt. Colony,  
P.O. Malda
134. Jnanpith Science Club, House of Sri S. Nandi,  
Kutubpur, Nayagram Road, 732101
135. Bijnanananda Science Club,  
C/o Vivekananda Vidyamandir, P.O. Malda
136. Nebula Science Club, Via Singatala,  
(Near Fire Brigade), P.O. Malda, 732101

**Murshidabad**

137. Babta Netaji High School Science Club, Babta
138. Berhampore Block Science Club,  
C/o Berhampore Block Yuba Kendra, P.O. Khagra
139. Berhampore Science Club, Purbachal Road,  
P.O. Khagra
140. Manindranagar Girls' High School Science Club,  
C/o Manindranagar Girls' High School, Cossimbazar
141. Murshidabad Zilla Bijnan Parishad, 11/3A, K. K.  
Banerjee Rd., P.O. Berhampore-742101
142. Miatali Milanayan, P.O. Chak Islampur

143. Raja Bijoy Singh Vidyamandir Science Club,  
C/o Raja Bijoy Singh Vidyamandir, Jiaganj
144. Raghunath Science Cultural Centre,  
P.O. Raghunath Gunj
145. Murshidabad Science Club, (Sc. & Cult. Organization)  
Jubilee Tank (Lal bagh), P.O. Murshidabad-742149

**Midnapore**

146. Acharyya Jagadish Chandra Bose Science Club,  
C/o Prof. Jogen Debnath, Rabindranagar-721101
147. Acharyya P. C. Roy Science Club,  
Sabang Saradamoyee High School, P.O. Sabang
148. Bijnan Anushilan Kendra,  
C/o Daspur-1, Block Youth Office, P.O. Daspur
149. Binpur I Block Science Club,  
Lalgarh Ramkrishna Vidyalaya, P.O. Lalgarh
150. Bijnan Anushilan Kendra, C/o Sagarpur Sri Ashutosh  
H. S. School, P.O. Sagarpur, Vill. Dashpur
151. Contai Science Club, C/o Contai High School,  
P.O. Contai-721401
152. Egra Science Club, P.O. Kasba, Egra
153. Jagadish Chandra Bose Science Club,  
Naikuri Thakurdas Institute,  
P.O. & Vill. Naikuri
154. Hamilton Science Club, C/o Hamilton High School,  
P.O. Tamluk
155. Kolaghat Science Hobby Centre, P.O. Kolaghat
156. Joutha Sanskritiki, C/o Steel Builders, P.O. Tamluk
157. Lalgarh Students' Science Club,  
C/o Lalgarh Ramkrishna Vidyalaya, Binpur
158. Little Scientists' Culture, P.O. Kolaghat,  
Vill. Parkpara

159. Nabarun Sangha, C/o Subrata Chakrabarti,  
Vill. Ashurali, P.O. Kolaghat
160. Panna Bharat Ratna Roy Science Club,  
P.O. & Vill. Panna
161. Photon Science Centre, C/o Subrata Ghorai,  
P.O. Panskura
162. Prafulla Smriti Bijnan Sanstha,  
C/o Block Yuba Kendra,  
Saltora-2, P.O. Chakdwipa
163. Popular Science Hobby Centre,  
C/o Aurobindo Siksha Niketan,  
P.O. Chakshyampore-721124
164. Satyen Bose Bijnan Sangstha, Block Yuba Kendra  
Panskura-II, P.O. Kolaghat
165. S. N. Bose Science Club, P.O. Deulia
166. Science Club of Block Yuba Kendra, Egra-1
166. The Midnapore Science Society, P.O. Basantitala
168. Science Centre, Sahapur Moon Light Club,  
Vill. Sahapur, P.O. Kolaghat

**Nadia**

169. Chakdaha Block Science Club,  
C/o Chakdaha Block Yuba Kendra, Chakdaha
170. Kanchrapara Science Club, P.O. Kataganj
171. Nabadwip Block Science Centre,  
C/o Nabadwip Jatiya Vidyalaya, Nabadwip
172. Taherpur Bijnan Parishad, C/o Air Voice,  
P.O. Taherpur
173. Khalboalia High School (Science Club),  
P.O. Khalboalia
174. Soumen Majumdar Samaj Bijnan Institute,  
P.O. Chakda

## PART V

139

175. Ranaghat Bijnan Samiti, C/o College Staff Qrts.  
P.O. Ranaghat
176. Tarun Sansad Samaj Bijnan Anusilan Kendra,  
P.O. Madanpur
177. Fulia Science Club, P.O. Fulia Colony-742402
178. Chakda Gano Bijnan Kendra, P.O. Chakda
179. Ranaghat Samaj Bijnan Parishad, P.O. Ranaghat
180. Chakda Bijnan Parishad, P.O. Chakda
181. Children Association for Science & Technology,  
P.O. Krishnanagar-741101
182. B. P. C. Jr. Tech. Science Club,  
P.O. Krishnanagar-741101
183. Bijnan O Sahitya Chakra, P.O. Shantipur-741404
184. Majdhia Bijnan Club, P.O. Majhdia
185. Shantipur Science Club, P.O. Shantipur-741404
186. Kalyani Science Club, B10/102, P.O. Kalyani

**Purulia**

187. Jhalda Science Club,  
C/o Jhalda Satyabhama Vidyapith, P.O. Masina
188. Sri Bhaskaracharyya Bijnan Club,  
C/o Balarampur Phoolchand High School,  
Debiprasad Banerjee Road, Balarampur, P.O. Rangdih

**West Dinajpur**

189. Kaliyaganj Bijnan Charcha Kendra,  
C/o Satyapriya Roy Kendriya Granthagar,  
P.O. Kaliyaganj, Pin-733129

**24 Parganas**

190. Alpha Science Club, 1, Ganendra Deb Road,  
Majilpur, P.O. Jaynagar

140

## SPECTRUM

191. Anneswa, P.O. Maslandapur, Pin- 743289
192. Asokenagar Bijnan Sangstha, 686/1, Asokenagar, P.O. Asokenagar, Pin- 743222
193. Banitirtha Bijnan Chakra, Diamond Harbour
194. Barasat Bijnan Sangha,  
C/o Shyamal Gon Sivanda Palli, P.O. Barasat
195. Bijnan Sansad, Vill. Bishnupur,  
P.O. Rajarhat, Bishnupur
196. Baruipur Science Club, P.O. Baruipur
197. Basirhat Agro-technical Organisation,  
C/o Prof. Narayan Das, Basirhat College,  
P.O. Basirhat College
198. C. V. Raman Bijnan Sadan,  
Vill. & P.O. Helencha Colony
199. Bijnan Darbar, 100, Basantababu Road,  
P.O. Kanchrapara- 743145
200. Gaighata Block Science Club,  
C/o Dhakuria High School, Chandpara Bazar
201. Jogananda Bijnan Sadan, P.O. Khulna,  
Via Sandesh Khali
202. Gobardanga Renaissance Institute, P.O. Khantura
203. Guma Science Circle, Vill. Prithiba, P.O. Guma
204. J. S. Association, Vill. Patuli, P.O. Garia
205. Kalinagarhat High School Science Club,  
P.O. Kalinagarhat, Via Nazat
206. Maheshtola Bijnan O Sanskriti Parishad,  
P.O. & Vill. Durlavpur, Muheshtola, Pin- 743352
207. Media Bijnan Asar, C/o Chhatra Kalyan Samity,  
P.O. Media (Via Khantura)
208. Progressive Science Club, 202/2, Ashokenagar,  
P.O. Ashokenagar